## **SIEMENS**

## Data sheet

## 6ES7214-1HF40-0XB0

SIMATIC S7-1200F, CPU 1214 FC, COMPACT CPU, DC/DC/RELAY, ONBOARD I/O: 14 DI 24V DC; 10 DO RELAY 2A; 2 AI 0 - 10V DC, POWER SUPPLY: DC 20.4 - 28.8 V DC, PROGRAM/DATA MEMORY 125 KB



General information	
Product type designation	CPU 1214FC DC/DC/Relay
Firmware version	V4.2
Engineering with	
<ul> <li>Programming package</li> </ul>	STEP 7 V14 or higher
Supply voltage	
Rated value (DC)	
• 24 V DC	Yes
permissible range, lower limit (DC)	20.4 V
permissible range, upper limit (DC)	28.8 V
Load voltage L+	
<ul> <li>Rated value (DC)</li> </ul>	24 V
<ul> <li>permissible range, lower limit (DC)</li> </ul>	20.4 V
• permissible range, upper limit (DC)	28.8 V
Input current	
Current consumption, max.	1 500 mA; max. with all expansion accessories
Inrush current, max.	12 A; at 28.8 V DC
l²t	0.5 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 cumply	
Encoder supply 24 V encoder supply	
• 24 V	L+ minus 4 V DC min.
2	
Power loss	
Power loss, typ.	12 W
Memory	
Work memory	
• integrated	125 kbyte
• expandable	No
Load memory	
• integrated	4 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.	0.085 μs; / instruction
for word operations, typ.	1.7 μs; / instruction
for floating point arithmetic, typ.	2.3 µs; / instruction
CPU-blocks	
Number of blocks (total)	DBs, FCs, FBs, counters and timers. The maximum number of
	addressable blocks ranges from 1 to 65535. There is no
OB	restriction, the entire working memory can be used
	Limited only by RAM for code
• Number, max.	Linited only by RAW 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	
<ul> <li>per priority class, max.</li> </ul>	16 kbyte; Priority class 1 (program cycle): 16 KB, priority class 2 to 26: 6 KB
Address area	
Process image	
<ul> <li>Inputs, adjustable</li> </ul>	1 kbyte
<ul> <li>Outputs, adjustable</li> </ul>	1 kbyte

Number of modules per system, max.     3 comm. modules, 1 signal board, 8 signal modules       Digital inputs     14       Number of digital outputs     10       Number of digital outputs     10       Analog inputs     2       Input ranges     2       • Voitage     Yes       Input ranges (rated values), voltages     100 knms       • O to +10 V     Yes       • Input ranges (rated values), voltages     100 knms       • Shelded, max.     100 m; twisted and shielded       Analog outputs     0       Output ranges, current     0       • O to 20 mA     Yes       Analog outputs     0       Number of analog nutputs     0       Output ranges, current     • O to 20 mA       • O to 20 mA     Yes       Analog volputs     0       Integration sint (per channet)     626 µs       Encoder     2       Conversion time (per channet)     626 µs       Encoders     2       • Zwire sensor     Yes       Interface lype     PROFINET       Interface lype     PROFINET       Physics     Ethernet       Isolated     Yes       Autorogolation     Yes       Autorogolation     Yes       Autorogolation     Yes<	Hardware configuration	
Number of digital inputs     14       Digital outputs     10       Number of digital outputs     10       Analog inputs     2       Number of analog inputs     2       Input ranges     Yes       Input ranges (rated values), voltages     9       • 0 to +10 V     Yes       - Input resistance (0 to 10 V)     2100k ohms       Cable length     9       • shielded, max.     100 m; twisted and shielded       Analog outputs     0       Number of analog outputs     0       Output ranges, current     0       • 0 to 20 mA     Yes       Analog value generation for the inputs     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     2       Connectable encoders     2       • 2 wire sensor     Yes       1 Interface     PROFINET       Physics     Ethernet       Isolati     Yes       Autorogotation     Yes       Autorossing     Yes       • Number of ports     1       • Integrate switch     Yes		3 comm. modules, 1 signal board, 8 signal modules
Number of digital inputs     14       Digital outputs     10       Number of digital outputs     10       Analog inputs     2       Number of analog inputs     2       Input ranges     Yes       Input ranges (rated values), voltages     9       • 0 to +10 V     Yes       - Input resistance (0 to 10 V)     2100k ohms       Cable length     9       • shielded, max.     100 m; twisted and shielded       Analog outputs     0       Number of analog outputs     0       Output ranges, current     0       • 0 to 20 mA     Yes       Analog value generation for the inputs     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     2       Connectable encoders     2       • 2 wire sensor     Yes       1 Interface     PROFINET       Physics     Ethernet       Isolati     Yes       Autorogotation     Yes       Autorossing     Yes       • Number of ports     1       • Integrate switch     Yes		
Digital outputs       Number of digital outputs     10       Analog inputs     2       Number of analog inputs     2       Input ranges     Yes       • Voitage     Yes       Input ranges (rated values), voitages     -       • 0 to +10 V     Yes       • Input renges (rated values), voitages     -       • 0 to +10 V     Yes       • Input renges (rated values), voitages     -       • 0 to +10 V     Yes       • Input renges (rated values), voitages     -       • 0 to +10 V     Yes       • Input renges (rated values), voitages     -       • Input renges (rated values), voitages     -       • O to +10 V     Yes       • Input renges (rated values), voitages     0       Output ranges, current     0       • 0 to 20 mA     Yes       Analog value generation for the inputs     -       Integration and conversion time/resolution per channel     -       • Resolution with overrange (bit including sign), max.     10 bit       • Integration and conversion time/resolution per channel     -       • Conversion time (per channel)     E25 µs       Connectable encoders     -       • 2-wire sensor     Yes       Interface type     PROFINET       Physics     Ethernet <td></td> <td>14</td>		14
Number of digital outputs     10       Analog inputs     2       Number of analog inputs     2       Input ranges     Yes       Input ranges (rated values), voltages     9       • Voltage     Yes       Input ranges (rated values), voltages     9       • O to +10 V     Yes       • Input resistance (0 to 10 V)     2100k ohms       Cable length     9       • shelded, max.     100 m; twisted and shielded       Analog outputs     0       Output ranges, current     0       • 0 to 20 mA     Yes       Analog value generation for the inputs     0       Integration and conversion time/resolution per channel     9       • Resolution with overrange (bit including sign), max.     10 bit       • Integration time, parameterizable     Yes       • Conversion time (per channel)     625 µs       Encoder     2       Connectable encoders     9       • 2-wire sensor     Yes       1 Interface     Yes       automatic detection of transmission rate     Yes       automatic detection of transmission rate     Yes       Autoregotiation     Yes       Autoregotiation     Yes       Interface types     Yes       Interface types     Yes       Int		
Analog inputs       2         Number of analog inputs       2         Input ranges       Yes         Input ranges (rated values), voltages       Yes         Input resistance (0 to 10 V)       2100k ohms         Cable length       100 m; twisted and shielded         • shielded, max.       100 m; twisted and shielded         Analog outputs       0         Number of analog outputs       0         Output ranges, current       0         • 0 to 20 mA       Yes         Analog value generation for the inputs       Integration and conversion time/resolution per channel         Integration and conversion time/resolution per channel       Yes         • Integration time, parameterizable       Yes         • Conversion time (per channel)       625 µs         Encoder       Yes         • 2-wire sensor       Yes         Interface type       PROFINET         Physics       Ethernet         Isolated       Yes         Autonegotiation       Yes         Autonegotiation       Yes		
Number of analog inputs       2         Input ranges       Voltage       Yes         Input ranges (rated values), voltages       • 0 to +10 V       Yes         • 0 to +10 V       Yes       • 10 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         Output ranges, current       • 0 to 20 mA       Yes         • 0 to 20 mA       Yes         Analog value generation for the inputs       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       Yes         Interface       Yes         Interface       Yes         automatic detection of transmission rate       Yes         Autonegoliation       Yes         Autonegoliation       Yes         Number of ports       1         • integrated switch       Yes         Functionality       Yes	Number of digital outputs	10
Input ranges           • Voltage         Yes           Input ranges (rated values), voltages         • (a to +10 ∨           • 0 to +10 ∨         Yes           • Input resistance (0 to 10 ∨)         ≥100k ohms           Cable length         •           • shielded, max.         100 m; twisted and shielded           Analog outputs         0           Number of analog outputs         0           Output ranges, current         •           • 0 to 20 mA         Yes           Analog value generation for the inputs         10 bit           Analog value generation for the inputs         •           Integration and conversion time/resolution per channel         •           • Resolution with overrange (bit including sign), max.         10 bit           • Integration time (per channel)         625 µs           Encoder         Encoder           Connectable encoders         •           • 2-wire sensor         Yes           Interface type         PROFINET           Physics         Ethernet           Isolated         Yes           automatic detection of transmission rate         Yes           Autoreogniation         Yes           Autoreosing         Yes	Analog inputs	
• Voltage         Yes           Input ranges (rated values), voltages         • 0 to +10 V           • 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           Output ranges, current         •           • 0 to 20 mA         Yes           Analog value generation for the inputs         •           Integration and conversion time/resolution per channel         •           • Resolution with overrange (bit including sign), max.         10 bit           • Integration time, parameterizable         Yes           • Conversion time (per channel)         625 µs           Encoder         •           Connectable encoders         •           • 2-wire sensor         Yes           1 Interface type         PROFINET           Physics         Ethernet           isolated         Yes           Autonegotiation         Yes           Autonegotiation         Yes           Autonegotiation         Yes           Number of ports         1	Number of analog inputs	2
Input ranges (rated values), voltages       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         Output ranges, current       0         • 0 to 20 mA       Yes         Analog value generation for the inputs       Integration and conversion time/resolution per channel         • Resolution with overrange (bit including sign), max.       10 bit         • Integration time, parameterizable       Yes         • Conversion time (per channel)       625 µs         Encoder       Ves         Connectable encoders       Yes         • 1. terface       Yes         Interface type       PROFINET         Physics       Ethernet         Isolated       Yes         automatic detection of transmission rate       Yes         Autocrossing       Yes         Interface types       Yes <td>Input ranges</td> <td></td>	Input ranges	
• 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         Output ranges, current       0         • 0 to 20 mA       Yes         Analog value generation for the inputs       10 bit         max.       10 bit         • 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       Ethernet         Isolated       Yes         Autonegotiation       Yes         Autorossing       Yes         Interface types       Yes         Number of ports       1         • Number of ports       1         • integrated switch       Yes	Voltage	Yes
Input resistance (0 to 10 V)         ≥100k ohms           Cable length         100 m; twisted and shielded           Analog outputs         0           Number of analog outputs         0           Output ranges, current         0           • 0 to 20 mA         Yes           Analog value generation for the inputs         Integration and conversion time/resolution per channel           • Resolution with overrange (bit including sign), max.         10 bit           • Integration time, parameterizable         Yes           Conversion time (per channel)         625 µs           Encoder         Conversion time (per channel)           625 µs         Encoders           • 2-wire sensor         Yes           Interface type         PROFINET           Physics         Ethernet           Isolated         Yes           Autoregotiation         Yes           Autoregotiation         Yes           Autoregotiation         Yes           Interface type         PROFINET           Physics         Ethernet           Isolated         Yes           Autoregotiation         Yes           Mumber of ports         1           • Number of ports         1 <t< td=""><td>Input ranges (rated values), voltages</td><td></td></t<>	Input ranges (rated values), voltages	
Cable length       100 m; twisted and shielded         Analog outputs       0         Number of analog outputs       0         Output ranges, current       0         • 0 to 20 mA       Yes         Analog value generation for the inputs       Integration and conversion time/resolution per channel         • Resolution with overrange (bit including sign), max.       10 bit         • Integration time, parameterizable       Yes         • Conversion time (per channel)       625 µs         Encoder       Connectable encoders         • 2-wire sensor       Yes         1 Interface       Interface         Interface type       PROFINET         Physics       Ethernet         Isolated       Yes         Autocrossing       Yes         Autocrossing       Yes         • Number of ports       1         • integrated switch       Yes	• 0 to +10 V	Yes
• shielded, max.       100 m; twisted and shielded         Analog outputs       0         Number of analog outputs       0         Output ranges, current       •         • 0 to 20 mA       Yes         Analog value generation for the inputs       Integration and conversion time/resolution per channel         • Resolution with overrange (bit including sign), max.       •         • Integration time, parameterizable       Yes         • Conversion time (per channel)       625 µs         Encoder       Encoder         Connectable encoders       •         • 2-wire sensor       Yes         Interface type       PROFINET         Physics       Ethernet         Isolated       Yes         Autocrossing       Yes         Autogration       Yes         • Number of ports       1         • integrated switch       Yes         • Number of ports       1         • integrated switch       Yes	<ul> <li>Input resistance (0 to 10 V)</li> </ul>	≥100k ohms
Analog outputs       0         Number of analog outputs       0         Output ranges, current       • 0 to 20 mA         • 0 to 20 mA       Yes         Analog value generation for the inputs       Integration and conversion time/resolution per channel         • Resolution with overrange (bit including sign), max.       10 bit         • Integration time, parameterizable       Yes         • Conversion time (per channel)       625 µs         Encoder       Connectable encoders         • 2-wire sensor       Yes         Interface type       PROFINET         Physics       Ethernet         Isolated       Yes         Autonegotiation of transmission rate       Yes         Autorossing       Yes         Number of ports       1         • Interface types       Yes         Functionality       Yes	Cable length	
Number of analog outputs     0       Output ranges, current     • 0 to 20 mA       • 0 to 20 mA     Yes       Analog value generation for the inputs     • Integration and conversion time/resolution per channel       • Resolution with overrange (bit including sign), max.     • 10 bit       • Integration time, parameterizable     Yes       • Conversion time (per channel)     625 µs       Encoder     • Conversion time (per channel)       Connectable encoders     • 2-wire sensor       • 2-wire sensor     Yes       Interface     • Interface type       Interface type     PROFINET       Physics     Ethernet       Isolated     Yes       automatic detection of transmission rate     Yes       Autocrossing     Yes       Interface types     • Number of ports       • Number of ports     1       • Number of ports     1       • integrated switch     Yes	• shielded, max.	100 m; twisted and shielded
Number of analog outputs     0       Output ranges, current     • 0 to 20 mA       • 0 to 20 mA     Yes       Analog value generation for the inputs     • Integration and conversion time/resolution per channel       • Resolution with overrange (bit including sign), max.     • 10 bit       • Integration time, parameterizable     Yes       • Conversion time (per channel)     625 µs       Encoder     • Conversion time (per channel)       Connectable encoders     • 2-wire sensor       • 2-wire sensor     Yes       Interface     • Interface type       Interface type     PROFINET       Physics     Ethernet       Isolated     Yes       automatic detection of transmission rate     Yes       Autocrossing     Yes       Interface types     • Number of ports       • Number of ports     1       • Number of ports     1       • integrated switch     Yes	Analog outputs	
Output ranges, current     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     625 µs       • 2-wire sensor     Yes       1. Interface     Interface type       Physics     Ethernet       Isolated     Yes       automatic detection of transmission rate     Yes       Autorossing     Yes       Interface types     Yes       Autogotiation     Yes       Autorossing     Yes       Interface types     1       • Number of ports     1       • Number of ports     1       • Integrated switch     Yes	· · ·	0
• 0 to 20 mA     Yes       Analog value generation for the inputs     Integration and conversion time/resolution per channel       • Resolution with overrange (bit including sign), max.     10 bit       • Integration time, parameterizable     Yes       • Conversion time (per channel)     625 µs       Encoder     625 µs       Connectable encoders     Yes       • 2-wire sensor     Yes       Interface     Yes       Interface type     PROFINET       Physics     Ethernet       Isolated     Yes       automatic detection of transmission rate     Yes       Autorcossing     Yes       Interface types     Yes       Autogotiation     Yes       Autogotiation     Yes       Interface types     Yes       Functionality     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       625 µs         Connectable encoders       • 2-wire sensor         • 2-wire sensor       Yes         Interface       PROFINET         Physics       Ethernet         Isolated       Yes         automatic detection of transmission rate       Yes         Autorogotiation       Yes         Interface types       Yes         Isolated       Yes         automatic detection of transmission rate       Yes         Autorogotiation       Yes         Interface types       Yes         Interface types       Yes         Functionality       1		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       625 µs         Connectable encoders       • 2-wire sensor         • 2-wire sensor       Yes         Interface       PROFINET         Physics       Ethernet         Isolated       Yes         automatic detection of transmission rate       Yes         Autorogotiation       Yes         Interface types       Yes         Isolated       Yes         automatic detection of transmission rate       Yes         Autorogotiation       Yes         Interface types       Yes         Interface types       Yes         Functionality       1		
• Resolution with overrange (bit including sign), max.10 bit• Integration time, parameterizable • Conversion time (per channel)Yes625 μsEncoderConnectable encoders • 2-wire sensorYes1. InterfaceInterface typePROFINETPhysicsEthernetIsolated automatic detection of transmission rateYesAutonegotiation AutorossingYesInterface typesYes• 2-wine sensorYes1. Interface typePROFINETPhysicsEthernetIsolated automatic detection of transmission rateYesAutorossing Interface typesYes• Number of ports • integrated switch1• FunctionalityYes		
max.  Integration time, parameterizable Conversion time (per channel)  Encoder Connectable encoders  2-wire sensor Yes  Interface Interface type PROFINET Physics Ethernet Isolated Yes automatic detection of transmission rate Yes Autonegotiation Yes Autocrossing Yes Interface types Number of ports Number of ports Integrated switch Functionality		10 bit
• Integration time, parameterizableYes• Conversion time (per channel)625 μsEncoderConnectable encoders• 2-wire sensorYes1. InterfaceInterface typePROFINETPhysicsEthernetIsolatedYesautomatic detection of transmission rateYesAutonegotiationYesAutorossingYesInterface types1• Number of ports1• integrated switchYes		
<ul> <li>Conversion time (per channel)</li> <li>625 µs</li> <li>Encoder</li> <li>Connectable encoders         <ul> <li>2-wire sensor</li> <li>Yes</li> </ul> </li> <li>Interface</li> <li>Interface type</li> <li>PROFINET</li> <li>Physics</li> <ul> <li>Ethernet</li> <li>Isolated</li> <li>Yes</li> </ul> <li>automatic detection of transmission rate</li> <li>Autoregotiation</li> <li>Yes</li> <li>Autoressing</li> <li>Yes</li> <li>Interface types</li> <li>Number of ports</li> <li>integrated switch</li> <li>Yes</li> </ul>		Yes
Encoder         Connectable encoders         • 2-wire sensor       Yes         Interface         Interface type       PROFINET         Physics       Ethernet         Isolated       Yes         automatic detection of transmission rate       Yes         Autonegotiation       Yes         Interface types       Yes         Interface types       Yes         Functionality       1		
Connectable encoders       Yes         • 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       Yes		010 00
• 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       Yes		
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     Yes	Connectable encoders	
Interface typePROFINETPhysicsEthernetIsolatedYesautomatic detection of transmission rateYesAutonegotiationYesAutocrossingYesInterface types1• Number of ports1• integrated switchYesFunctionality	• 2-wire sensor	Yes
Interface typePROFINETPhysicsEthernetIsolatedYesautomatic detection of transmission rateYesAutonegotiationYesAutocrossingYesInterface types1• Number of ports1• integrated switchYesFunctionality	1. Interface	
IsolatedYesautomatic detection of transmission rateYesAutonegotiationYesAutocrossingYesInterface typesYes• Number of ports1• integrated switchYesFunctionalityYes		PROFINET
automatic detection of transmission rateYesAutonegotiationYesAutocrossingYesInterface typesInterface types• Number of ports1• integrated switchYesFunctionalityInterface types	Physics	Ethernet
AutonegotiationYesAutocrossingYesInterface typesInterface types• Number of ports1• integrated switchYesFunctionalityInterface types	Isolated	Yes
Autocrossing     Yes       Interface types     • Number of ports       • Number of ports     1       • integrated switch     Yes       Functionality	automatic detection of transmission rate	Yes
Interface types       • Number of ports       • integrated switch       Functionality	Autonegotiation	Yes
• Number of ports     1       • integrated switch     Yes       Functionality     1	Autocrossing	Yes
	Interface types	
Functionality	Number of ports	1
	<ul> <li>integrated switch</li> </ul>	Yes
PROFINET IO Controller     Yes	Functionality	
	PROFINET IO Controller	Yes

PROFINET IO Device	Yes
<ul> <li>SIMATIC communication</li> </ul>	Yes
Open IE communication	Yes
Web server	Yes
Media redundancy	Yes; as MRP client
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	Yes; as MRP client
— MRPD	No
— PROFlenergy	No
— Prioritized startup	Yes
<ul> <li>— Number of IO devices with prioritized</li> </ul>	16
startup, max.	
<ul> <li>Number of connectable IO Devices, max.</li> </ul>	16
<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

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	Yes; as MRP client
— MRPD	No
— PROFlenergy	Yes
— Shared device	Yes
<ul> <li>Number of IO Controllers with shared device, max.</li> </ul>	2

Protocols	
Supports protocol for PROFINET IO	Yes
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
Further protocols	
• MODBUS	Yes
Communication functions	
S7 communication	
• supported	Yes
• as server	Yes
• as client	Yes
• User data per job, max.	See online help (S7 communication, user data size)
Open IE communication	
• TCP/IP	Yes
— Data length, max.	8 kbyte
<ul> <li>ISO-on-TCP (RFC1006)</li> </ul>	Yes
— Data length, max.	8 kbyte
• UDP	Yes
— Data length, max.	1 472 byte
Web server	
• supported	Yes
<ul> <li>User-defined websites</li> </ul>	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

• Memory size per trace, max.

512 kbyte

• Memory size per trace, max.	STZ KDyte	
Integrated Functions		
Number of counters	6	
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 interface	Up to 4 with SB 1222	
PID controller	Yes	
Number of alarm inputs	4	
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		
<ul> <li>Limit class A, for use in industrial areas</li> </ul>	Yes; Group 1	
<ul> <li>Limit class B, for use in residential areas</li> </ul>	Yes; When appropriate measures are used to ensure compliance with the limits for Class B according to EN 55011	
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	
Highest safety class achievable in safety mode		
<ul> <li>Performance level according to ISO 13849-1</li> </ul>	PLe	
• SIL acc. to IEC 61508	SIL 3	

Ambient conditions	
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
• vertical installation, min.	-20 °C
• vertical installation, max.	50 °C
Ambient temperature during storage/transportation	
• min.	-40 °C
• max.	70 °C
Air pressure acc. to IEC 60068-2-13	
• Storage/transport, min.	660 hPa
<ul> <li>Storage/transport, max.</li> </ul>	1 139 hPa
<ul> <li>permissible operating height</li> </ul>	-1000 to 2000 m
Relative humidity	
• Operation, max.	95 %; no condensation
Vibrations	
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
Shock test	
• 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; incl. failsafe
— FBD	Yes; incl. failsafe
— SCL	Yes
Know-how protection	
<ul> <li>User program protection/password protection</li> </ul>	Yes
Copy protection	Yes
Block protection	Yes
Cycle time monitoring	
• adjustable	Yes
Dimensions	
Width	110 mm

Height	100 mm
Depth	75 mm
Weights	
Weight, approx.	435 g
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