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
Engineering with	
 Programming package 	STEP 7 V17 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	
 permissible range, lower limit 	47 Hz
 permissible range, upper limit 	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
²t	0.8 A ² ·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
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 2.3 µs; / instruction Number of blocks (total) DBs, FCs, FBs, counters and timers. The maximum number of addressable blocks ranges from 1 to 65535. There is no restruction OB • Number, max. Limited only by RAM for code Data areas and their retentivity Retentive data area (incl. timers, counters, flags), max. Flag • Size, max. 8 kbyte; Size of bit memory address area Local data • per priority class, max. 16 kbyte; Priority class 1 (program cycle): 16 KB, priority class 1 (brogram cycle): 16 KB, pri	iction, the
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 restrientire 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), max. 14 kbyte Flag • Size, max. • Size, max. 8 kbyte; Size of bit memory address area Local data • per priority class, max. • per priority class, max. 16 kbyte; Priority class 1 (program cycle): 16 KB, priority class KB Address area • linputs, adjustable • linputs, adjustable 1 kbyte Hardware configuration 1 kbyte	iction, the
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 restrientire 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), max. 14 kbyte Flag • Size, max. 8 kbyte; Size of bit memory address area Local data • per priority class, max. 16 kbyte; Priority class 1 (program cycle): 16 KB, priority class KB Address area Process image • Inputs, adjustable 1 kbyte 1 kbyte Hardware configuration	iction, the
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Retentive data area (incl. timers, counters, flags), max. 14 kbyte Flag • Size, max. 8 kbyte; Size of bit memory address area Local data • per priority class, max. 16 kbyte; Priority class 1 (program cycle): 16 KB, priority class KB Address area • Process image • Inputs, adjustable 1 kbyte • Outputs, adjustable 1 kbyte 1 kbyte	s 2 to 26: 6
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Process image • Inputs, adjustable • Outputs, adjustable • Outputs, adjustable 1 kbyte Hardware configuration	
Inputs, adjustable Outputs, adjustable Adjustable I kbyte I kbyte Hardware configuration	
Outputs, adjustable 1 kbyte Hardware configuration	
Hardware configuration	
Number of modules per system, max. 3 comm. modules, 1 signal board, 8 signal modules	
Time of day	
Clock	
Hardware clock (real-time) Yes	
Backup time 480 h; Typical	
• Deviation per day, max. ±60 s/month at 25 °C	
Digital inputs	
Number of digital inputs 14; Integrated	
of which inputs usable for technological functions 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	
• Rated value (DC) 24 V	
• for signal "0" 5 V DC at 1 mA	
• for signal "1" 15 V DC at 2.5 mA	
Input delay (for rated value of input voltage)	
for standard inputs	
— parameterizable 0.2 ms, 0.4 ms, 0.8 ms, 1.6 ms, 3.2 ms, 6.4 ms and 12.8 ms, in groups of four — at "0" to "1", min. 0.2 ms	selectable
— at "0" to "1", max. 12.8 ms	
for interrupt inputs	
– parameterizable Yes	
for technological functions	
parameterizable Single phase: 3 @ 100 kHz & 3 @ 30 kHz, differential: 3 @ 8 @ 30 kHz	0 kHz & 3
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	
• with resistive load, max. 2 A	
on lamp load, max. 30 W with DC, 200 W with AC	
Output delay with resistive load	
• "0" to "1", max. 10 ms; max.	

• "1" to "0", max.	10 ms; max.
Relay outputs	10 mo, max.
Number of relay outputs	10
Number of operating cycles, max.	mechanically 10 million, at rated load voltage 100 000
Cable length	incontaincaily to minion, attacta load tonago too ooo
• shielded, max.	500 m
• unshielded, max.	150 m
Analog inputs	
Number of analog inputs	2
Input ranges	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	
Number of analog outputs	0
Analog value generation for the inputs	
Integration and conversion time/resolution per channel	
	10 bit
 Resolution with overrange (bit including sign), max. Integration time, parameterizable 	Yes
Conversion time (per channel)	
· · ·	625 µs
Encoder	
Connectable encoders	Vee
2-wire sensor	Yes
1. Interface	
Isolated	Yes
automatic detection of transmission rate	Yes
Autonegotiation	Yes
Autocrossing	Yes
Interface types	Vee
RJ 45 (Ethernet)	Yes
Number of ports	1
integrated switch	No
Protocols PROFINET IO Controller	Yes
PROFINET IO Controller PROFINET IO Device	Yes
SIMATIC communication	Yes
Open IE communication	Yes; Optionally also encrypted
Web server	Yes
Media redundancy	No
PROFINET IO Controller	INO
Transmission rate, max.	100 Mbit/s
Services	
— PG/OP communication	Yes; encryption with TLS V1.3 pre-selected
— Isochronous mode	No
— IRT	No
— PROFlenergy	No
- Prioritized startup	Yes
— Number of IO devices with prioritized startup,	16
max.	
- Number of connectable IO Devices, max.	16
 — Number of connectable IO Devices for RT, 	16
max.	
— of which in line, max.	16
 Activation/deactivation of IO Devices 	Yes
— Number of IO Devices that can be	8

— Updating time The minimum value of the update time also depends on the communication component set for PGCFINET (I). On the number of (I) devices and the quantity of configured user data. PROFINET IG Device Services — PGOP communication Yes: encryption with TLS V1.3 pre-selected — INT No — PROFILE Yes: encryption with TLS V1.3 pre-selected — Number of IO Controllers with shared device. 2 Protocol Yes: Supports protocol for PROFINET IO Yes: PROFILES Yes: CM 1243-5 (master) or CM 1242-5 (alave) required OPE UA Yes: CM 1243-5 (master) or CM 1242-5 (alave) required PROFILES Yes: CM 1243-5 (master) or CM 1242-5 (alave) required PROFILES Yes: CM 1243-5 (master) or CM 1242-5 (alave) required PROFILES Yes: CM 1243-5 (master) or CM 1242-5 (alave) required PROFILES Yes: CM 1243-5 (master) or CM 1242-5 (alave) required Protocols Yes: CM 1243-5 (master) or CM 1242-5 (alave) required Protocols Yes: CM 1243-5 (master) or CM 1242-5 (alave) required Protocols Yes: CM 1243-5 (master) or CM 1242-5 (master) for CM 1242-5 (master) for CM 1242-5 (master) for CM 1242-5 (ma	aimultaneously activated/deastivated_may																																																																															
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Supports protocol for PROFINET IO Yes PROFIBUS Yes; CM 1243-5 (master) or CM 1242-5 (slave) required OPC UA Yes; OPC UA Server AS-Interface Yes; CM 1243-2 required Protocols (Ethernet) Yes • TCP/IP Yes • DCP No • SNMP Yes • DCP Yes • Edundancy Yes Redundancy mode Yes Media redundancy Yes - MRP No - MRPD No - Strouting Yes Open IE communication Yes • ST routing Yes Open IE communication Yes • Solon-TCP (RFC1006) Yes · Data length, max. 8 kbyte • UDP Yes - Data length, max. 8 kbyte • UDP Yes - Data length, max. 1472 byte Web server Yes • User-defined websites Yes • User defined websites Yes																																																																																
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SIMATIC communication Yes Open IE communication Yes Open IE communication Yes • TCP/IP Yes • Data length, max. 8 kbyte • ISO-on-TCP (RFC1006) Yes — Data length, max. 8 kbyte • UDP Yes — Data length, max. 1472 byte Web server Yes • Supported Yes • User-defined websites Yes OPC UA Yes; "Basic" license required • OPC UA Server Yes; data access (read, write, subscribe), method call, runtime license required • OPC UA Server Yes; data access (read, write, subscribe), method call, runtime license required • OPC UA Server Yes; data access (read, write, subscribe), method call, runtime license required • OPC UA Server Yes; data access (read, write, subscribe), method call, runtime license required • OPC UA Server Yes; data access (read, write, subscribe), method call, runtime license required • OPC UA Server Yes; data access (read, write, subscribe), method call, runtime license required • OPC UA Server Yes; data access (read, write, subscribe), method call, runtime license required • OPC UA Server Yes; data acces	-	No																																																																														
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Open IE communication Yes - Data length, max. 8 kbyte • ISO-on-TCP (RFC1006) Yes - Data length, max. 8 kbyte • UDP Yes - Data length, max. 1472 byte Web server 1472 byte • UDP Yes - Data length, max. 1 472 byte Web server Yes • Susported Yes • User-defined websites Yes OPC UA Yes: "Basic" license required • OPC UA Server Yes: data access (read, write, subscribe), method call, runtime license required - Application authentication Available security policies: None, Basic128Rsa15, Basic256Rsa15, Basic256Sha256 - User authentication "anonymous" or by user name & password - Number of sessions, max. 10 - Number of subscriptions per session, max. 50 - Sampling interval, min. 200 - Number of monitored items, max. 1000 - Number of server methods, max. 2 - Number of nodes for user-defined server interfaces, max. 2 - Number of nodes for user-defined server	SIMATIC communication																																																																															
• TCP/IPYes- Data length, max.8 kbyte• ISO-on-TCP (RFC1006)Yes- Data length, max.8 kbyte• UDPYes- Data length, max.1 472 byteWeb server• Data length, max.1 472 byteWeb server• User-defined websitesYes• User-defined websitesYes• OPC UAYes; "Basic" license required• Runtime license requiredYes; "Basic" license required• OPC UAYes; "data access (read, write, subscribe), method call, runtime license required• OPC UA ServerYes; data access (read, write, subscribe), method call, runtime license required- Application authenticationAvailable security policies: None, Basic128Rsa15, Basic256Rsa15, Basic256Sha256- User authentication"anonymous" or by user name & password- Number of sessions, max.10- Number of sessions, max.50- Sampling interval, min.200 ms- Number of monitored items, max.20- Number of nodes for user-defined server interfaces, max.2- Number of nodes for user-defined server interfaces, max.2- Number of nodes for user-defined server interfaces, max.2000- Number of nodes for user-defined server2000- Number of nodes for user-defined server2000 <tr <td="">- MODBUSYes<td>S7 routing</td><td>Yes</td></tr> <tr><td> Data length, max.8 kbyte· ISO-on-TCP (RFC1006)Yes·- Data length, max.8 kbyte· UDPYes Data length, max.1 472 byteWebserver1 472 byte· SupportedYes· User-defined websitesYesOPC UAYes; 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• Runtime license required Yes; "Basic" license required • OPC UA Server Yes; data access (read, write, subscribe), method call, runtime license required - Application authentication Available security policies: None, Basic128Rsa15, Basic256Rsa15, Basic256Sha256 - User authentication "anonymous" or by user name & password - Number of sessions, max. 10 - Number of subscriptions per session, max. 50 - Sampling interval, min. 100 ms - Number of server methods, max. 200 ms - Number of server methods, max. 1000 - Number of server interfaces, max. 2 - Number of server interfaces, max. 2 - Number of server interfaces, max. 2 - Number of nondes for user-defined server interfaces, max. 2 - Number of nodes for user-defined server interfaces, max. 2 - Number of nodes for user-defined server interfaces, max. 2 - MODBUS Yes		Yes																																																																														
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	Communication functions																																																																															

S7 communication	N.
 supported 	Yes
• as server	Yes
• as client	Yes
User data per job, max.	See online help (S7 communication, user data size)
Number of connections	
• overall	PG Connections: 4 reserved / 4 max; HMI Connections: 12 reserved / 18 max; S7 Connections: 8 reserved / 14 max; Open User Connections: 8 reserved / 14 max; Web Connections: 2 reserved / 30 max; OPC UA Connections: 0 reserved / 10 max; Total Connections: 34 reserved / 64 max
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	
 Number of configurable Traces 	2
 Memory size per trace, max. 	512 kbyte
Interrupts/diagnostics/status information	
Diagnostics indication LED	
RUN/STOP LED	Yes
ERROR LED	Yes
MAINT LED	Yes
Integrated Functions	
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
Potential separation	
Potential separation digital inputs	
	500V/AC for 1 minute
 Potential separation digital inputs between the channels, in groups of 	500V AC for 1 minute
Potential separation digital outputs	1
Potential separation digital outputs	Palava
between the channels	Relays
 between the channels, in groups of 	No 2
	2
EMC	
Interference immunity against discharge of static electricity	Vee
 Interference immunity against discharge of static electricity acc. to IEC 61000-4-2 	Yes
— Test voltage at air discharge	8 kV
— Test voltage at contact discharge	6 kV
Interference immunity to cable-borne interference	
 Interference immunity on supply lines acc. to IEC 61000-4-4 	Yes
 Interference immunity on signal cables acc. to IEC 61000-4-4 	Yes
Interference immunity against voltage surge	
 Interference immunity on supply lines acc. to IEC 61000-4-5 	Yes
Interference immunity against conducted variable disturbance	e induced by high-frequency fields
Interference immunity against high-frequency radiation acc. to IEC 61000-4-6	Yes
Emission of radio interference acc. to EN 55 011	

• Limit class A, for use in industrial areas

• Limit class B, for use in residential areas

Yes; Group 1

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

	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
	Yes
KC approval	
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
 horizontal installation, min. 	-20 °C
 horizontal installation, max. 	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	
• Operation, min.	795 hPa
Operation, max.	1 080 hPa
•	660 hPa
Storage/transport, min.	
Storage/transport, max.	1 080 hPa
Altitude during operation relating to sea level	4 000
Installation altitude, min.	-1 000 m
 Installation altitude, max. 	5 000 m; Restrictions for installation altitudes > 2 000 m, see manual
Relative humidity	
	95 %; no condensation
Relative humidity	
Relative humidity Operation, max. 	
Relative humidity Operation, max. Vibrations Vibration resistance during operation acc. to IEC 	95 %; no condensation
Relative humidity • Operation, max. Vibrations • Vibration resistance during operation acc. to IEC 60068-2-6	95 %; no condensation 2 g (m/s²) wall mounting, 1 g (m/s²) DIN rail
Relative humidity • Operation, max. Vibrations • Vibration resistance during operation acc. to IEC 60068-2-6 • Operation, tested according to IEC 60068-2-6 Shock testing • tested according to IEC 60068-2-27	95 %; no condensation 2 g (m/s²) wall mounting, 1 g (m/s²) DIN rail
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 Protection level: Complete protection 	Yes
Cycle time monitoring	
adjustable	Yes
Dimensions	
Width	110 mm
Height	100 mm
Depth	75 mm
Weights	
Weight, approx.	455 g

last modified:

4/12/2021 🖸