SIEMENS

Data sheet

6ES7214-1AG40-0XB0





SIMATIC S7-1200, CPU 1214C, compact CPU, DC/DC/DC, onboard I/O: 14 DI 24 V DC; 10 DO 24 V DC; 2 AI 0-10 V DC, power supply: DC 20.4-28.8 V DC, program/data memory 150 KB



Figure similar

General information	
Product type designation	CPU 1214C DC/DC/DC
Firmware version	V4.6
Engineering with	
 Programming package 	STEP 7 V18 or higher
Supply voltage	
Rated value (DC)	
• 24 V DC	Yes
permissible range, lower limit (DC)	20.4 V
permissible range, upper limit (DC)	28.8 V
Reverse polarity protection	Yes
Load voltage L+	
 Rated value (DC) 	24 V
 permissible range, lower limit (DC) 	20.4 V
 permissible range, upper limit (DC) 	28.8 V
Input current	
Current consumption (rated value)	500 mA; CPU only
Current consumption, max.	1 500 mA; CPU with all expansion modules
Inrush current, max.	12 A; at 28.8 V
l²t	0.5 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	L+ minus 4 V DC min.
Power loss	
Power loss, typ.	12 W
Memory	
Work memory	
• integrated	150 kbyte
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	100
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	2.0 po, / mod dodon
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), 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 2 to 26: 6 KB
Address area	
Process image	
 Inputs, adjustable 	1 kbyte
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	
 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, selectable in groups of four
— at "0" to "1", min.	0.2 ms
— at "0" to "1", max.	12.8 ms
for interrupt inputs	Von
— parameterizable	Yes
for technological functions	Single phase: 3 @ 100 kHz 2 2 @ 20 kHz differential; 2 @ 20 kHz 2 2 @ 20
— 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
of which high-speed outputs	4; 100 kHz Pulse Train Output
Limitation of inductive shutdown voltage to	L+ (-48 V)
Switching capacity of the outputs	
with resistive load, max.	0.5 A
• on lamp load, max.	5 W
Output voltage	

 for signal "0", max. for signal "1", min. 20 V Output current for signal "1" rated value for signal "0" residual current, max. O.1 mA Output delay with resistive load "0" to "1", max. "1" to "0", max. 5 μs Switching frequency of the pulse outputs, with resistive load, max. Relay outputs Number of relay outputs shielded, max. unshielded, max. unshielded, max. to m Analog inputs Voltage Input ranges Voltage Input resistance (0 to 10 V) Pes 2100 m; twisted and shielded shielded, max. 100 m; twisted and shielded 	
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— Input resistance (0 to 10 V) ≥100k ohms Cable length • shielded, max. 100 m; twisted and shielded	
Cable length ◆ shielded, max. 100 m; twisted and shielded	
• 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	
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	
Interface type PROFINET	
<u>Isolated</u> Yes	
automatic detection of transmission rate Yes	
Autonegotiation Yes	
Autocrossing Yes	
Interface types	
• RJ 45 (Ethernet) Yes	
• Number of ports 1	
• integrated switch No	
Protocols PROFINET IO Controller Ven	
PROFINET IO Controller Yes	
PROFINET IO Device Yes	
• SIMATIC communication Yes	
Open IE communication Yes; Optionally also encrypted	
• Web server Yes	
Media redundancy No	
PROFINET IO Controller	
• 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, max.	

Number of connectable IO Devices for RT, max of which in line, max: Activation/deachvation of IO Devices Number of IO Devices that can be simultaneously activate/diseachvated.max Updating time		
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- PG/OP communication Yes; encryption with TLS V1.3 pre-selected No	PROFINET IO Device	of configured door data.
	Services	
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Supports protocol for PROFINET IO PROFIsate No PROFIsate No OPC UA S-Interface Protocols (Ethernet) • TCP/IP • DHCP • No • SNMP • DCP • LLDP • MRP • Data length, max • ISO-on-TCP (RFC1008) • Data length, max • UDP • Data length, max • USF-defined websites OPC UA • Runtime license required • OPC UA Server • Application authentication • Number of subscriptions per session, max • Number of subscriptions per session, max • Number of subscriptions per session, max • Sampling interval, min. • Publishing interval, min. • Publishing interval, min. • Publishing interval, min. • Publishing interval, min. • 200 ms		
PROFIBUS		Vac
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) ***		
OPC UA Yes; OPC UA Server AS-Interface Yes; CM 1243-2 required Protocols (Ethernet) Yes • TCP/IP Yes • DHCP No • SNMP Yes • DCP Yes • LLDP Yes Redundancy mode Media redundancy — MRP No — MRPD No SIMATIC communication Yes • S7 routing 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. 1 472 byte Web server • User-defined websites Yes OPC UA • Runtime license required 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 <td></td> <td></td>		
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Redundancy mode Media redundancy	• DCP	Yes
Media redundancy	• LLDP	Yes
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UDP Data length, max. 1472 byte Web server supported User-defined websites PC UA Runtime license required OPC UA Server Application authentication Available security policies: None, Basic128Rsa15, Basic256Rsa15, Basic256Sha256 User authentication Number of sessions, max. Number of subscriptions per session, max. Sampling interval, min. Publishing interval, min. 100 ms 1472 byte Yes 1472 byte 1472 byte 1472 byte 1472 byte 1472 byte 1472 byte 1472 byte 1472 byte 1472 byte 1472 byte 1472 byte 1472 byte 1472 byte 1472 byte 1472 byte 1472 byte 1472 byte 1472 byte 1472 byte 1472 byte 1472 byte 1472 byte 1472 byte 1472 byte 1472 byte 1472 byte 1472 byte 1472 byte 1472 byte 1472 byte 1472 byte 1472 byte 1472 byte 1472 byte 1472 byte 1472 byte 1472 byte 1472 byte 1472 byte 1472 byte 1472 byte 1472 byte 1472 byte 1472 byte 1472 byte 1472 byte 1472 byte 1472 byte 1472 byte 1472 byte 1472 byte 1472 byte 1472 byte 1472 byte 1472 byte 1472 byte 1472 byte 1472 byte 1472 byte 1472 byte 1472 byte 1472 byte 1472 byte 1472 byte 1472 byte 1472 byte 1472 byte 1472 byte 1472 byte 1472 byte 1472 byte 1472 byte 1472 byte 1472 byte 1472 byte 1472 byte 1472 byte 1472 byte 1472 byte 1472 byte 1472 byte 1472 byte 1472 byte 1472 byte 1472 byte 1472 byte 1472 byte 1472 byte 1472 byte 1472 byte 1472 byte 1472 byte 1472 byte 1472 byte 1472 byte 1472 byte 1472 byte 1472 byte 1472 byte 1472 byte 1472 byte 1472 byte 1472 byte 1472 byte 1472	• ISO-on-TCP (RFC1006)	Yes
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Web server Yes ● User-defined websites Yes OPC UA Yes; "Basic" license required ● 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. 5 — Sampling interval, min. 100 ms — Publishing interval, min. 200 ms	• UDP	Yes
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User-defined websites OPC UA Runtime license required OPC UA Server Application authentication User authentication Number of sessions, max. Number of subscriptions per session, max. Sampling interval, min. Publishing interval, min. Ves; "Basic" license required Yes; "Basic" license required Yes; data access (read, write, subscribe), method call, runtime license required Yes; data access (read, write, subscribe), method call, runtime license required Yes; "Basic" license req	Web server	
OPC UA ● Runtime license required ● OPC UA Server — Application authentication — User authentication — Number of sessions, max. — Number of subscriptions per session, max. — Sampling interval, min. — Publishing interval, min. ● Runtime license required Yes; "Basic" license required Yes; data access (read, write, subscribe), method call, runtime license required Available security policies: None, Basic128Rsa15, Basic256Rsa15, Basic256Sha256 "anonymous" or by user name & password 10 100 ms 200 ms	• supported	Yes
 Runtime license required OPC UA Server Application authentication User authentication Number of sessions, max. Number of subscriptions per session, max. Sampling interval, min. Publishing interval, min. Yes; "Basic" license required Yes; data access (read, write, subscribe), method call, runtime license required Yes; data access (read, write, subscribe), method call, runtime license required Yes; data access (read, write, subscribe), method call, runtime license required Available security policies: None, Basic128Rsa15, Basic256Rsa15, Basic256Sha256 User authorizes: None, Basic128Rsa15, Basic256Rsa15, Basic256Sha256 User authorizes: None, Basic128Rsa15, Basic256Rsa15, Basic256Rsa15, Basic256Sha256 User authorizes: None, Basic128Rsa15, Basic256Rsa15, Basic256Rsa15, Basic256Sha256 User authorizes: None, Basic128Rsa15, Basic256Rsa15, Basic256Rsa15, Basic256Sha256 User authorizes: None, Basic128Rsa15, Basic256Rsa15, Basic256Rsa15, <	 User-defined websites 	Yes
 OPC UA Server Application authentication User authentication Number of sessions, max. Number of subscriptions per session, max. Sampling interval, min. Publishing interval, min. Yes; data access (read, write, subscribe), method call, runtime license requirements. Available security policies: None, Basic128Rsa15, Basic256Rsa15, Basic256Sha256 "anonymous" or by user name & password 10 5 100 ms 200 ms 	OPC UA	
 OPC UA Server Application authentication User authentication Number of sessions, max. Number of subscriptions per session, max. Sampling interval, min. Publishing interval, min. Yes; data access (read, write, subscribe), method call, runtime license requirements. Available security policies: None, Basic128Rsa15, Basic256Rsa15, Basic256Sha256 "anonymous" or by user name & password 10 5 100 ms 200 ms 	Runtime license required	Yes; "Basic" license required
 Application authentication Available security policies: None, Basic128Rsa15, Basic256Rsa15, Basic256Sha256 User authentication Number of sessions, max. Number of subscriptions per session, max. Sampling interval, min. Publishing interval, min. Available security policies: None, Basic128Rsa15, Basic256Rsa15, Basic256Rsa15,	·	Yes; data access (read, write, subscribe), method call, runtime license required
 Number of sessions, max. Number of subscriptions per session, max. Sampling interval, min. Publishing interval, min. 200 ms 	— Application authentication	Available security policies: None, Basic128Rsa15, Basic256Rsa15,
 Number of sessions, max. Number of subscriptions per session, max. Sampling interval, min. Publishing interval, min. 200 ms 	 User authentication 	"anonymous" or by user name & password
 Number of subscriptions per session, max. Sampling interval, min. Publishing interval, min. 200 ms 	— Number of sessions, max.	
— Sampling interval, min.— Publishing interval, min.200 ms		
— Publishing interval, min. 200 ms		
— multipet of server friethous, friax.	Number of server methods, max.	20
— Number of monitored items, recommended max. 1 000		
— Number of monitored items, recommended max. — Number of server interfaces, max. 2		
— Number of nodes for user-defined server interfaces, max. 2 000 max.	 Number of nodes for user-defined server interfaces, 	
Further protocols		
MODBUS Yes	·	Yes
▲ MIODDO0	▼ IVIODUO	160

communication functions / header	
S7 communication	
• supported	Yes
as server	Yes
as client	Yes
User data per job, max.	See online help (S7 communication, user data size)
Number of connections	
• overall	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
est commissioning functions	
Status/control	
Status/control variable	Yes
Variables	Inputs/outputs, memory bits, DBs, distributed I/Os, timers, counters
Forcing	inputation parties, montary state, 225, and instance in cos, annotes, countries
• Forcing	Yes
	160
Diagnostic buffer	V
• present	Yes
Traces	
 Number of configurable Traces 	2
Memory size per trace, max.	512 kbyte
nterrupts/diagnostics/status information	
Diagnostics indication LED	
• RUN/STOP LED	Yes
• ERROR LED	Yes
MAINT LED	Yes
	160
ntegrated Functions	
Counter	
 Number of counters 	6
Counting frequency, 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	4; With integrated outputs
PID controller	Yes
Number of alarm inputs	4
·	
Number of pulse outputs	4
Limit frequency (pulse)	100 kHz
Potential separation	
Potential separation digital inputs	
 Potential separation digital inputs 	No
 between the channels, in groups of 	1
Potential separation digital outputs	
Potential separation digital outputs	Yes
between the channels	No
	1
between the channels, in groups of	'
EMC	
Interference immunity against discharge of static electricity	
Interference immunity against discharge of static electricity against NEC 61000 4.2	Yes
electricity acc. to IEC 61000-4-2	0.147
— 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-	Yes
4-5	

Interference immunity against high-frequency radiation	Yes
acc. to IEC 61000-4-6	
Emission of radio interference acc. to EN 55 011	
 Limit class A, for use in industrial areas 	Yes; Group 1
• Limit class B, for use in residential areas	Yes; When appropriate measures are used to ensure compliance with the limits for Class B according to EN 55011
Degree and class of protection	
IP degree of protection	IP20
Standards, approvals, certificates	
CE mark	Yes
UL approval	Yes
cULus	Yes
FM approval	Yes
RCM (formerly C-TICK)	Yes
KC approval	Yes
Marine approval	Yes
Ecological footprint	
 environmental product declaration 	Yes
Global warming potential	
— global warming potential, (total) [CO2 eq]	111 kg
— global warming potential, (during production) [CO2 eq]	20.1 kg
— global warming potential, (during operation) [CO2 eq]	91.5 kg
— global warming potential, (after end of life cycle)[CO2 eq]	-0.896 kg
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
Storage/transport, min.	660 hPa
Storage/transport, max.	1 080 hPa
Altitude during operation relating to sea level	
Installation altitude, min.	-1 000 m
Installation altitude, max.	5 000 m; Restrictions for installation altitudes > 2 000 m, see manual
Relative humidity	
Operation, max.	95 %; no condensation
Vibrations	
• Vibration resistance during operation acc. to IEC 60068-2-6	2 g (m/s²) wall mounting, 1 g (m/s²) DIN rail
 Operation, tested according to IEC 60068-2-6 	Yes
Shock testing	
• 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
Pollutant concentrations	
 SO2 at RH < 60% without condensation 	S02: < 0.5 ppm; H2S: < 0.1 ppm; RH < 60% condensation-free
configuration / header	
configuration / programming / header	
Programming language	

— LAD	Yes
— FBD	Yes
— SCL	Yes
Know-how protection	
 User program protection/password protection 	Yes
Copy protection	Yes
Block protection	Yes
Access protection	
 protection of confidential configuration data 	Yes
 Protection level: Write protection 	Yes
 Protection level: Read/write protection 	Yes
Protection level: Complete protection	Yes
programming / cycle time monitoring / header	
adjustable	Yes
Dimensions	
Width	110 mm
Height	100 mm
Depth	75 mm
Weights	
Weight, approx.	415 g

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