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	V4.7	
Engineering with		
Programming package	STEP 7 V20 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 μο, η που ασυστ
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	0.1 / 0.2 / 0.4 / 0.8 / 1.6 / 3.2 / 6.4 / 10.0 / 12.8 / 20.0 μs; 0.05 / 0.1 / 0.2 / 0.4 / 0.8 / 1.6 / 3.2 / 6.4 / 10.0 / 12.8 / 20.0 ms
— 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. 0.1 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 o shielded, max. unshielded, max. unshielded, max. to m Analog inputs Voltage Yes Input ranges (rated values), voltages 0 to +10 V — Input resistance (0 to 10 V) Cable length shielded, max. 100 m; twisted and shielded 	
Output current • for signal "1" rated value • for signal "0" residual current, max. Output delay with resistive load • "0" to "1", max. • "1" to "0", max. Switching frequency • of the pulse outputs, with resistive load, max. • Number of relay outputs • shielded, max. • unshielded, max. • unshielded, max. Number of analog inputs Number of analog inputs • Voltage Input ranges • Voltage Input ranges (rated values), voltages • 0 to +10 V — Input resistance (0 to 10 V) Cable length	
 for signal "1" rated value for signal "0" residual current, max. 0.1 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. 100 kHz Relay outputs • Number of relay outputs 0 Cable length • shielded, max. • unshielded, max. • unshielded, max. 150 m Analog inputs Number of analog inputs 2 Input ranges • Voltage • Voltage Input ranges (rated values), voltages • 0 to +10 V — Input resistance (0 to 10 V) ≥ 200 kohms 	
 for signal "0" residual current, max. 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. 100 kHz Relay outputs • Number of relay outputs • Shielded, max. • shielded, max. • unshielded, max. • unshielded, max. • Unturanges • Voltage Input ranges (rated values), voltages • 0 to +10 V — Input resistance (0 to 10 V) Cable length 	
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Input ranges	
Voltage Yes Input ranges (rated values), voltages 0 to +10 V	
Input ranges (rated values), voltages	
— Input resistance (0 to 10 V) ≥100k ohms Cable length	
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	
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 to Devices for RT, max Number of connectable to Devices for RT, max Activation/deacharden of LO Devices for RT, max Updating time The second of LO Devices for RT, max Updating time The second of LO Devices for RT, max Updating time The second of LO Devices for RT, max Updating time The second of LO Devices for RT, max POUPD communication - RT, max POUPD communication - RT, max PROFilerency - Second dovice - Second dovice - RT, max PROFilerency - Second dovice - Second for PROFINIT IO - Yes - Number of IO Controllers with shared device, max 2 Protocool Supports protocol for PROFINIT IO - Yes - No - PROFileus - Yes, CM 1243.5 (master) or CM 1242.5 (stave) required - Yes, CM 1243.2 (master) or CM 1242.5 (stave) required - Yes, CM 1243.2 (master) or CM 1242.5 (stave) required - Yes, CM 1243.2 (master) or CM 1242.5 (stave) required - Yes, CM 1243.2 (master) or CM 1242.5 (stave) required - Yes, CM 1243.2 (master) or CM 1242.5 (stave) required - Yes, CM 1243.2 (master) or CM 1242.5 (stave) required - Yes, CM 1243.2 (master) or CM 1242.5 (stave) required - Yes, CM 1243.2 (master) - Yes - DOP - LOP - No - SMATC communication - Wes - ST footing - OPC UA Server - Application authentication - Wes (Pasior) (max Yes, CM 1243.2 (master) - Yes - Data length, max Yes - SC or Total (max Yes, CM 1243.2 (master) - Yes - Yes - Data length, max Yes - Yes - Sconding interval. max Yes - Yes - Sampting interval. max Yes - Yes - Sampting interval. max Yes - No No -		
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Isochronous mode IRT PROFlenergy Shared device Number of IO Controllers with shared device, max. Profosols Supports protocol for PROFINET IO PROFIBUS P	— PG/OP communication	Yes; encryption with TLS V1.3 pre-selected
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Redudancy mode Media redundancy	• SNMP	Yes
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Media redundancy	• LLDP	Yes
	Redundancy mode	
- MRPD No SIMATIC communication • \$7 routing 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. 1472 byte Web server • supported Yes • User-defined websites Yes OPC UA • Runtime license required • OPC UA Server - Application authentication Available security policies: None, Basic128Rsa15, Basic256Rsa15, Basic256Sha256 - User authentication "anonymous" or by user name & password - Number of sessions, max. 10 - Number of sessions, max. 5 - Sampling interval, min. 100 ms - Publishing interval, min. 200 ms - Number of server methods, max. 20 - Number of server methods, max. 20 - Number of server methods, max. 20 - Number of server interfaces, max. 2 - Number of server interfaces, max. 2 - Number of oddes for user-defined server interfaces, max. 7 Euther protocols	Media redundancy	
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- Data length, max. • UDP - Data length, max. 1 472 byte Web server • supported • User-defined websites OPC UA • Runtime license required • OPC UA Server - Application authentication - Number of sessions, max Number of server interfaces, max. - Number of nodes for user-defined server interfaces, max User authentication authentication - Number of server interfaces, max Number of nodes for user-defined server interfaces, max Number of nodes for user-defined server interfaces, max Ves; "Basic" license required Yes; "Basic" license required Yes; "Basic" 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 100 ms 200 ms 100 ms 200 ms - Number of server methods, max. 20 - Number of nonitored items, recommended max. 20 - Number of nonitored items, recommended max. 20 - Number of nodes for user-defined server interfaces, max. 20 - Number of podes for user-defined server interfaces, max.	— Data length, max.	8 kbyte
UDP Data length, max. 1 472 byte Web server supported User-defined websites OPC 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. Number of server methods, max. Number of server interfaces, max. Number of server interfaces, max. Number of server interfaces, max. Number of nodes for user-defined server interfaces, max. Number of nodes for user-defined server interfaces, max. Further protocols	• ISO-on-TCP (RFC1006)	Yes
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Further protocols	 Number of nodes for user-defined server interfaces, 	
● IVIOUDUS YES	·	Voo
	● MODRO2	res

mmunication 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 / 68 max
est 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
terrupts/diagnostics/status information	o i z i i i ju
Diagnostics indication LED	V
RUN/STOP LED	Yes
• ERROR LED	Yes
MAINT LED	Yes
tegrated 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
otential 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
between the channels, in groups of	1
MC	
nterference immunity against discharge of static electricity	Von
 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
nterference immunity to cable-borne interference	
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
nterference immunity against voltage surge	
Interference immunity on supply lines acc. to IEC 61000- 4-5	Yes

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	
Siemens Eco Profile (SEP)	Siemens EcoTech
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; type II acc. to ISO 14021
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]	-0.9 kg
Ambient conditions	
Free fall	
• Fall height, max.	0.3 m; five times, in product package
Ambient temperature during operation	c.c III, IIVo tillico, III product package
• 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, min. Storage/transport, max.	1 080 hPa
	1 000 IIFa
Altitude during operation relating to sea level	1 000 m
Installation altitude, min. Installation altitude, may	-1 000 m
Installation altitude, max.	5 000 m; Restrictions for installation altitudes > 2 000 m, see manual
Relative humidity	OF W. no condensation
Operation, max. Vibrations	95 %; no condensation
Vibrations	0 (/ 2) 11 11 11 11 11 11 11
 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
County baselen	
configuration / header	

		Manalan	01:6:4:
Classifications			
Weight, approx.	415 g		
Weights			
Depth	75 mm		
Height	100 mm		
Width	110 mm		
Dimensions			
• adjustable	Yes		
programming / cycle time monitoring / header			
Number of roles	20		
 Number of groups 	14		
 Number of users 	42		
User administration	Yes; device-wide		
 Protection level: Complete protection 	Yes		
 Protection level: Read/write protection 	Yes		
 Protection level: Write protection 	Yes		
 protection of confidential configuration data 	Yes		
Access protection			
Block protection	Yes		
Copy protection	Yes		
 User program protection/password protection 	Yes		
Know-how protection			
— SCL	Yes		
— FBD	Yes		
— LAD	Yes		
Programming language			

	Version	Classification
eClass	14	27-24-22-07
eClass	12	27-24-22-07
eClass	9.1	27-24-22-07
eClass	9	27-24-22-07
eClass	8	27-24-22-07
eClass	7.1	27-24-22-07
eClass	6	27-24-22-07
ETIM	9	EC000236
ETIM	8	EC000236
ETIM	7	EC000236
IDEA	4	3565
UNSPSC	15	32-15-17-05

Approvals / Certificates

General Product Approval





Manufacturer Declaration



Metrological Approval

<u>KC</u>

General Product Approval

EMV

For use in hazardous locations

Miscellaneous









<u>FM</u>

For use in hazardous locations

Marine / Shipping





CCC-Ex







Marine / Shipping

NK / Nippon Kaiji Ky-okai







CCS (China Classification Society)



Environment

Industrial Communication





PROFINET

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2/18/2025

