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
I ² t	0.5 A²·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	103
	0.00 vo./instruction
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	
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 heard 9 signal modules
	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	
— parameterizable	Yes
for technological functions	
— parameterizable	Single phase: 3 @ 100 kHz & 3 @ 30 kHz, differential: 3 @ 80 kHz & 3 @ 30
Coble length	kHz
Cable length	500 m; 50 m for tophological finalisms
• 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	
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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 - Where the second or CM 1242.5 (master) required - Yes, CM 1243.2 (
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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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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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 Number of nodes for user-defined server interfaces, max. Further protocols 		
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	
• 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. 	1 000 111 4
 Storage/transport, max. 	660 hPa
Altitude during a secretic and the secretic at the secretic and the secretic at the secretic a	
Altitude during operation relating to sea level	660 hPa
Installation altitude, min.	660 hPa
	660 hPa 1 080 hPa
Installation altitude, min.	660 hPa 1 080 hPa -1 000 m
Installation altitude, min.Installation altitude, max.	660 hPa 1 080 hPa -1 000 m
 Installation altitude, min. Installation altitude, max. Relative humidity	660 hPa 1 080 hPa -1 000 m 5 000 m; Restrictions for installation altitudes > 2 000 m, see manual
 Installation altitude, min. Installation altitude, max. Relative humidity Operation, max. 	660 hPa 1 080 hPa -1 000 m 5 000 m; Restrictions for installation altitudes > 2 000 m, see manual
 Installation altitude, min. Installation altitude, max. Relative humidity Operation, max. Vibrations Vibration resistance during operation acc. to IEC 60068- 	660 hPa 1 080 hPa -1 000 m 5 000 m; Restrictions for installation altitudes > 2 000 m, see manual 95 %; no condensation
Installation altitude, min. Installation altitude, max. Relative humidity Operation, max. Vibrations Vibration resistance during operation acc. to IEC 60068-2-6	660 hPa 1 080 hPa -1 000 m 5 000 m; Restrictions for installation altitudes > 2 000 m, see manual 95 %; no condensation 2 g (m/s²) wall mounting, 1 g (m/s²) DIN rail
Installation altitude, min. Installation altitude, max. Relative humidity Operation, max. Vibrations Vibration resistance during operation acc. to IEC 60068-2-6 Operation, tested according to IEC 60068-2-6	660 hPa 1 080 hPa -1 000 m 5 000 m; Restrictions for installation altitudes > 2 000 m, see manual 95 %; no condensation 2 g (m/s²) wall mounting, 1 g (m/s²) DIN rail
Installation altitude, min. Installation altitude, max. 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	660 hPa 1 080 hPa -1 000 m 5 000 m; Restrictions for installation altitudes > 2 000 m, see manual 95 %; no condensation 2 g (m/s²) wall mounting, 1 g (m/s²) DIN rail Yes Yes; IEC 68, Part 2-27 half-sine: strength of the shock 15 g (peak value),
Installation altitude, min. Installation altitude, max. Relative humidity Operation, max. Vibrations 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	660 hPa 1 080 hPa -1 000 m 5 000 m; Restrictions for installation altitudes > 2 000 m, see manual 95 %; no condensation 2 g (m/s²) wall mounting, 1 g (m/s²) DIN rail Yes Yes; IEC 68, Part 2-27 half-sine: strength of the shock 15 g (peak value),
Installation altitude, min. Installation altitude, max. Relative humidity Operation, max. Vibrations Vibrations Operation 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 Pollutant concentrations	660 hPa 1 080 hPa -1 000 m 5 000 m; Restrictions for installation altitudes > 2 000 m, see manual 95 %; no condensation 2 g (m/s²) wall mounting, 1 g (m/s²) DIN rail Yes Yes; IEC 68, Part 2-27 half-sine: strength of the shock 15 g (peak value), duration 11 ms

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		
User administration	Yes; device-wide		
Number of users	42		
 Number of groups 	14		
Number of roles	20		
programming / cycle time monitoring / header			
• adjustable	Yes		
Dimensions			
Width	110 mm		
Height	100 mm		
Depth	75 mm		
Weights			
Weight, approx.	415 g		
Classifications			
		Manatan	01!6:4:

	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 Miscellaneous

BIS CRS

Environment





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