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		
	100		
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			
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)	13 V DO dt 2.5 mA		
for standard inputs			
1	01/02/04/08/16/32/64/100/1222/00/00 005/01/02/04/		
— 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 kHz		
Cable length			
shielded, max.	500 m; 50 m for technological functions		
• unshielded, max.	300 m; for technological functions: No		
Digital outputs			
	10		
Number of digital outputs	10 A: 400 Hills Dulas Trais Octavit		
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 Trip max.0.1 V with 10 kOhm load• for signal Trip max.20 V• for signal Trip escula current, max.0.1 mA• for signal Trip escula current, max.0.1 mA• for trip Trip max.1 µa• 'Th 'D' Tri, max.1 µa• 'Th 'D' Trip max.5 µa• of the price volute. with reselve load, max.5 µa• of the price volute. with reselve load, max.6 µa• of the price volute. with reselve load, max.100 hUzReader degrid.•• with load for a with the reselve load, max.100 hUz• with load for a with the reselve load, max.100 n• with load for a with the reselve load, max.100 n• with load for a with the reselve load, max.100 n• with load for a with the reselve load (max.100 n• with load for a with the reselve load (max.100 n• with load for a with the reselve load (max.100 n• with load for a with the reselve load (max.100 n• with load for a with the reselve load (max.0• with load for a with load (max.0• with load for a with load for a with load (max.0• with load for a with load for a with load (max.0• with load for a with load for a with load (max.0• with load for a with load for a with load (max.0• with load for a with load for a with load (max.0• with load for a with load for a with load (max.0• with load for a with loa	e for signal "0" may	0.1 V/; with 10 kOhm load
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automatic detection of transmission rate Yes Autonegotiation Yes Autocrossing Yes Autocrossing Yes Interface types Interface types • RJ 45 (Ethernet) Yes • Number of ports 1 • Integrated switch No • PROFINET IO Controller Yes • PROFINET IO Controller Yes • PROFINET IO Device Yes • PROFINET IO Device Yes; Optionally also encrypted • Open IE communication Yes; Optionally also encrypted • Web server Yes; Optionally also encrypted • Media redundancy No • PROFINET IO Controller Yes; Optionally also encrypted • Transmission rate, max. 100 Mbit/s Services	Interface type	PROFINET
Autonegotiation Yes Autocrossing Yes Autocrossing Yes Interface types ************************************	Isolated	Yes
Autocrossing Yes Interface types FRJ 45 (Ethernet) Yes s • RJ 45 (Ethernet) Yes s • Number of ports 1 • integrated switch No Protocols Yes • PROFINET IO Controller Yes • PROFINET IO Device Yes • SIMATIC communication Yes; Optionally also encrypted • Open IE communication Yes; Optionally also encrypted • Web server Yes; Optionally also encrypted • Media redundancy Yes; Optionally also encrypted • Transmission rate, max. 100 Mbit/s Services	automatic detection of transmission rate	Yes
Interface types • RJ 45 (Ethernet) Yes • Number of ports 1 • integrated switch No • Protocols • PROFINET IO Controller Yes • PROFINET IO Device Yes • SIMATIC communication Yes; Optionally also encrypted • Open IE communication Yes; Optionally also encrypted • Web server Yes; Optionally also encrypted • Media redundancy Yes • Transmission rate, max. 100 Mbit/s Services - PG/OP communication Yes; encryption with TLS V1.3 pre-selected - IRT No - IRT No - PROFIenergy No - ProFienergy No - Prioritized startup Yes	Autonegotiation	Yes
• RJ 45 (Ethernet)Yes• Number of ports1• Integrated switchNo• ProtocolsYes• PROFINET IO ControllerYes• PROFINET IO DeviceYes• SIMATIC communicationYes• Open IE communicationYes; Optionally also encrypted• Open IE communicationYes; Optionally also encrypted• Web serverYes• Media redundancyNo• Transmission rate, max.100 Mbit/s• ServicesYes; encryption with TLS V1.3 pre-selected• Isochronous modeNo• IRTNo• PROFIenergyNo• PROFIenergyNo• Prioritized startupYes	Autocrossing	Yes
• Number of ports1• integrated switchNoProtocols• PROFINET IO ControllerYes• PROFINET IO DeviceYes• SIMATIC communicationYes• Open IE communicationYes; Optionally also encrypted• Open IE communicationYes; Optionally also encrypted• Web serverYes• Media redundancyNoPROFINET IO Controller• Transmission rate, max.100 Mbit/sServices PG/OP communicationYes; encryption with TLS V1.3 pre-selected- Isochronous modeNo- IRTNo- PROFIenergyNo- PROFIenergyNo- Prioritized startupYes	Interface types	
• integrated witchNoProtocols• PROFINET IO ControllerYes• PROFINET IO DeviceYes• SIMATIC communicationYes• Open IE communicationYes; Optionally also encrypted• Open IE communicationYes; Optionally also encrypted• Media redundancyNo• PROFINET IO Controller100 Mbit/s• Transmission rate, max.100 Mbit/s• PROFINETYes; encryption with TLS V1.3 pre-selected• PG/OP communicationNo• InRTNo• PROFINErgyNo• PROFInergyNo• Prioritized startupYes; encryption with TLS V1.3 pre-selected	RJ 45 (Ethernet)	Yes
Protocols 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 PROFINET IO Controller Yes; encryption with TLS V1.3 pre-selected IRT No IRT PROFIenergy Prioritized startup Yes Yes Yes Yes Yes Yes; encryption with TLS V1.3 pre-selected Yes	Number of ports	1
• PROFINET IO ControllerYes• PROFINET IO DeviceYes• SIMATIC communicationYes (Optionally also encrypted)• Open IE communicationYes (Optionally also encrypted)• Web serverYes• Media redundancyNo• PROFINET IO Controller100 Mbit/s• Transmission rate, max.100 Mbit/s• Services PG/OP communicationYes; encryption with TLS V1.3 pre-selected• Inschronous modeNo- IRTNo- PROFIenergyNo- Prioritized startupYes	 integrated switch 	No
• PROFINET IO DeviceYes• SIMATIC communicationYes• Open IE communicationYes; Optionally also encrypted• Web serverYes• Media redundancyNo• PROFINET IO Controller100 Mbit/s• Transmission rate, max.100 Mbit/s• Services PG/OP communicationYes; encryption with TLS V1.3 pre-selected- Isochronous modeNo- IRTNo- PROFIenergyNo- Prioritized startupYes; encryption with TLS V1.3 pre-selected	Protocols	
• SIMATIC communicationYes• Open IE communicationYes; Optionally also encrypted• Web serverYes• Media redundancyNo• PROFINET IO Controller100 Mbit/s• Transmission rate, max.100 Mbit/s• Services PG/OP communicationYes; encryption with TLS V1.3 pre-selected- Isochronous modeNo- IRTNo- PROFIenergyNo- Prioritized startupYes	PROFINET IO Controller	Yes
• Open IE communicationYes; Optionally also encrypted• Web serverYes• Media redundancyNo• PROFINET IO Controller100 Mbit/s• Transmission rate, max.100 Mbit/s• Services- PG/OP communicationYes; encryption with TLS V1.3 pre-selected- Isochronous modeNo- IRTNo- PROFlenergyNo- Prioritized startupYes	PROFINET IO Device	Yes
• Web serverYes• Media redundancyNoPROFINET IO Controller100 Mbit/s• Transmission rate, max.100 Mbit/sServices PG/OP communicationYes; encryption with TLS V1.3 pre-selected- Isochronous modeNo- IRTNo- PROFIenergyNo- Prioritized startupYes	SIMATIC communication	Yes
• Media redundancyNoPROFINET IO Controller• Transmission rate, max.100 Mbit/sServices- PG/OP communicationYes; encryption with TLS V1.3 pre-selected- Isochronous modeNo- IRTNo- PROFlenergyNo- Prioritized startupYes	Open IE communication	Yes; Optionally also encrypted
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	Web server	Yes
 Transmission rate, max. 100 Mbit/s Services - PG/OP communication Yes; encryption with TLS V1.3 pre-selected - Isochronous mode - IRT No No - PROFlenergy - Prioritized startup No	· · · · · · · · · · · · · · · · · · ·	No
Services — PG/OP communication Yes; encryption with TLS V1.3 pre-selected — Isochronous mode No — IRT No — PROFlenergy No — Prioritized startup Yes		
PG/OP communicationYes; encryption with TLS V1.3 pre-selected- Isochronous modeNo- IRTNo- PROFlenergyNo- Prioritized startupYes		100 Mbit/s
— Isochronous mode No — IRT No — PROFlenergy No — Prioritized startup Yes		
- IRTNo- PROFlenergyNo- Prioritized startupYes	— PG/OP communication	Yes; encryption with TLS V1.3 pre-selected
PROFlenergy No — Prioritized startup Yes		No
- Prioritized startup Yes		No
	- PROFlenergy	No
- Number of IO devices with prioritized startup, max. 16	-	
	 Number of IO devices with prioritized startup, max. 	16

 Number of connectable IO Devices, max. Number of connectable IO Devices for RT, max. of which in line, max. Activation/deactivation of IO Devices Number of IO Devices that can be simultaneously activated/deactivated, max. Updating time 	16 16 16 Yes 8 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; encryption with TLS V1.3 pre-selected
— Isochronous mode	No
— IRT	No
— PROFlenergy	Yes
— Shared device	Yes
 Number of IO Controllers with shared device, max. 	2
Protocols	
Supports protocol for PROFINET IO	Yes
PROFIsafe	
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)	Vee
• TCP/IP	Yes
• DHCP	No
• SNMP	Yes
• DCP	Yes
• LLDP	Yes
Redundancy mode	
Media redundancy	
— MRP	No
— MRPD	No
SIMATIC communication	
S7 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.	1 472 byte
Web server	
supported	Yes
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
 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
 Number of server methods, max. 	20
 Number of monitored items, recommended max. 	1 000
 Number of server interfaces, max. 	2
 Number of nodes for user-defined server interfaces, 	2 000
max.	
Further protocols	N
MODBUS	Yes

communication functions / header	
S7 communication	
	Yes
• supported	
• 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
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	Vor
RUN/STOP LED	Yes
• ERROR LED	Yes
MAINT LED	Yes
Integrated 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 Potential separation digital outputs	1
Potential separation digital outputs	Yes
between the channels	No
between the channels, in groups of	1
EMC	
Interference immunity against discharge of static electricity	
 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 indu	ced 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	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
eq] — global warming potential, (during operation) [CO2	91.5 kg
eq]	51.5 Kg
 global warming potential, (after end of life cycle) 	-0.9 kg
[CO2 eq]	
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/s ²) wall mounting, 1 g (m/s ²) 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	Yes				
— SCL	Yes	Yes				
Know-how protection						
 User program protection/password protection 	Yes	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	Yes; device-wide				
Number of users	42	42				
Number of groups	14	14				
Number of roles	20					
programming / cycle time monitoring / header						
adjustable	Yes					
Dimensions						
Width	110 mm					
Height	100 mm	100 mm				
Depth	75 mm	75 mm				
Veights						
Weight, approx.	415 g					
Classifications						
		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			

Approvals / Certificates		
	UNSPSC	
	IDEA	
	ETIM	
	ETIM	
	ETIM	

General Product Approval

CE EG-Konf.	UK CA	Manufacturer Declara- tion	<u>Miscellaneous</u>	U	Metrological Approval
General Product Approv	val		EMV	For use in hazardous	locations
<u>Miscellaneous</u>	<u>KC</u>	RCM	RCM	K ATEX	IECEx
For use in hazardous loo	cations			Maritime application	

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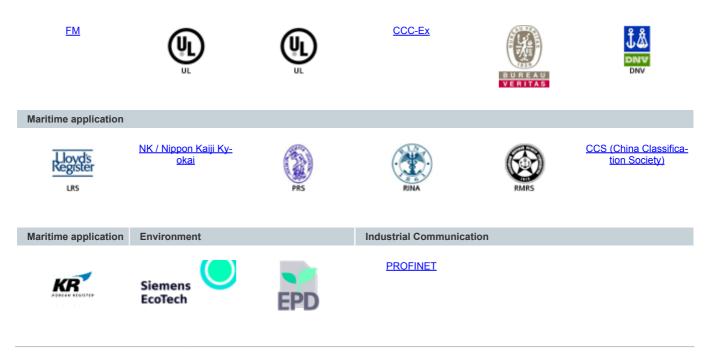
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