

SIPLUS S7-1200 CPU 1214C DC/DC/DC FOR MEDIAL STRESS WITH CONFORMAL COATING BASED ON 6ES7214-1AG40-0XB0 . COMPACT CPU, DC/DC/DC, ONBOARD I/O: 14 DI 24V DC 10 DO 24 V DC 2 AI 0 - 10V DC, POWER SUPPLY: DC 20.4 - 28.8 V DC, PROGRAM/DATA MEMORY: 75 KB

General information

Product type designation	CPU 1214C DC/DC/DC
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Display

with display	No
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Supply voltage

Rated value (DC)	Yes
<ul style="list-style-type: none"> • 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+

<ul style="list-style-type: none"> • Rated value (DC) 	24 V
<ul style="list-style-type: none"> • permissible range, lower limit (DC) 	20.4 V
<ul style="list-style-type: none"> • 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 DC

Encoder supply

24 V encoder supply	
<ul style="list-style-type: none"> • 24 V 	L+ minus 4 V DC min.

Output current

for backplane bus (5 V DC), max.	1 600 mA; Max. 5 V DC for SM and CM
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Power loss

Power loss, typ.	12 W
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Memory

Work memory	
<ul style="list-style-type: none"> • integrated 	100 kbyte
<ul style="list-style-type: none"> • expandable 	No

Load memory

<ul style="list-style-type: none"> integrated Plug-in (SIMATIC Memory Card), max. 	4 Mbyte with SIMATIC memory card
Backup	
<ul style="list-style-type: none"> present without battery 	Yes; maintenance-free Yes
CPU processing times	
for bit operations, typ.	0.085 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	
<ul style="list-style-type: none"> Number, max. 	Limited only by RAM for code
Data areas and their retentivity	
retentive data area in total (incl. times, counters, flags), max.	10 kbyte
Flag	
<ul style="list-style-type: none"> Number, max. 	8 kbyte; Size of bit memory address area
Local data	
<ul style="list-style-type: none"> per priority class, max. 	16 kbyte; Priority class 1 (program cycle): 16 KB, priority class 2 to 26: 6 KB
Address area	
Process image	
<ul style="list-style-type: none"> Inputs, adjustable Outputs, adjustable 	1 kbyte 1 kbyte
Hardware configuration	
Number of modules per system, max.	3 comm. modules, 1 signal board, 8 signal modules
Time of day	
Clock	
<ul style="list-style-type: none"> Hardware clock (real-time clock) Backup time Deviation per day, max. 	Yes 480 h; Typical 60 s/month at 25 °C
Digital inputs	
Number of digital inputs	14; Integrated
<ul style="list-style-type: none"> of which inputs usable for technological functions 	6; HSC (High Speed Counting)
integrated channels (DI)	14
m/p-reading	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	
— parameterizable	Yes
for counter/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	
Number of digital outputs	
• of which high-speed outputs	4; 100 kHz Pulse Train Output
integrated channels (DO)	
	10
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.	0.1 V; with 10 kOhm load
• for signal "1", min.	20 V
Output current	
• for signal "1" rated value	0.5 A
• for signal "0" residual current, max.	0.1 mA
Output delay with resistive load	
• "0" to "1", max.	1 µs
• "1" to "0", max.	5 µs
Switching frequency	
• of the pulse outputs, with resistive load, max.	100 kHz
Cable length	
• shielded, max.	500 m

- unshielded, max. 150 m

Analog inputs

Number of analog inputs	2
integrated channels (AI)	2; 0 to 10V
Input ranges	
• 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
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Analog value generation

Integration and conversion time/resolution per channel	
• Resolution with overrange (bit including sign), max.	10 bit
• Integration time, parameterizable	Yes
• Conversion time (per channel)	625 µs

Encoder

Connectable encoders	
• 2-wire sensor	Yes

1. Interface

Interface type	PROFINET
Physics	Ethernet
Isolated	Yes
automatic detection of transmission rate	Yes
Autonegotiation	Yes
Autocrossing	Yes
Functionality	
• PROFINET IO Controller	Yes
• PROFINET IO Device	Yes
• Open IE communication	Yes
• Web server	Yes
PROFINET IO Controller	
• Transmission rate, max.	100 Mbit/s
Services	
— Number of connectable IO Devices, max.	16
PROFINET IO Device	
Services	

- Shared device
- Number of IO Controllers with shared device, max.

Yes

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Protocols

Supports protocol for PROFINET IO	Yes
PROFIBUS	Yes; CM 1243-5 required
AS-Interface	Yes
Protocols (Ethernet)	
• TCP/IP	Yes
Further protocols	
• MODBUS	Yes

Communication functions

S7 communication	
• supported	Yes
• as server	Yes
• as client	Yes
Open IE communication	
• TCP/IP	Yes
• ISO-on-TCP (RFC1006)	Yes
• UDP	Yes
Web server	
• supported	Yes
• User-defined websites	Yes
Number of connections	
• overall	16; dynamically

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; Up to 512 KB of data per trace are possible

Integrated Functions

Number of counters	6
Counting frequency (counter) max.	100 kHz
Frequency meter	Yes
controlled positioning	Yes

Number of position-controlled positioning axes, max.	8
Number of positioning axes via pulse-direction interface	4; With integrated DO
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	500V AC for 1 minute
• 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

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	
• on the supply lines acc. to IEC 61000-4-5	Yes
Interference immunity against conducted variable disturbance 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	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

Degree of protection acc. to EN 60529	
• IP20	Yes

Ambient conditions

Free fall	
• Fall height, max.	0.3 m; five times, in product package
Ambient temperature during operation	

• min.	-20 °C; = Tmin; Startup @ 0 °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
Vibrations	
• Vibrations	2G wall mounting, 1G DIN rail
• Operation, tested according to IEC 60068-2-6	Yes
Shock test	
• 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
Extended ambient conditions	
• relative to ambient temperature-atmospheric pressure-installation altitude	Tmin ... Tmax at 1080 hPa ... 795 hPa (-1000 m ... +2000 m) // Tmin ... (Tmax - 10K) at 795 hPa ... 658 hPa (+2000 m ... +3500 m) // Tmin ... (Tmax - 20K) at 658 hPa ... 540 hPa (+3500 m ... +5000 m)
Relative humidity	
— With condensation, tested in accordance with IEC 60068-2-38, max.	100 %; RH incl. condensation/frost (no commissioning under condensation conditions)
Resistance	
— against biologically active substances / conformity with EN 60721-3-3	Yes; Class 3B2 mold, fungus and dry rot spores (with the exception of fauna). The supplied connector covers must remain on the unused interfaces during operation!
— against chemically active substances / conformity with EN 60721-3-3	Yes; Class 3C4 (RH < 75%) incl. salt spray according to EN 60068-2-52 (degree of severity 3). The supplied connector covers must remain on the unused interfaces during operation!
— against mechanically active substances / conformity with EN 60721-3-3	Yes; Class 3S4 incl. sand, dust. The supplied connector covers must remain on the unused interfaces during operation!
Configuration	
Programming	
Programming language	
— LAD	Yes
— FBD	Yes
— SCL	Yes
Cycle time monitoring	
• adjustable	Yes
Dimensions	

Width	110 mm
Height	100 mm
Depth	75 mm

Weights

Weight, approx.	415 g
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last modified: 14.05.2016