SIEMENS

SIPLUS S7-1200 CPU 1214C AC/DC/relay -40...+70°C with conformal coating based on 6ES7214-1BG31-0XB0 . compact CPU, AC/DC/relay, onboard I/O: "14 DI 24 V DC; 10 DO relay 2" "A; 2 AI 0-10 V DC, Power" supply: AC 85-264 V AC @ 47-63 Hz, Program/data memory 75 KB

Figure similar

General information	
Product type designation	CPU 1214C AC/DC/relay
Engineering with	
• Programming package	STEP 7 V11 SP2 or higher
Supply voltage	
Rated value (AC)	
• 120 V AC	Yes
• 230 V AC	Yes
permissible range, lower limit (AC)	85 V
permissible range, upper limit (AC)	264 V
Line frequency	
• permissible range, lower limit	47 Hz
• permissible range, upper limit	63 Hz
Input current	
Current consumption (rated value)	100 mA at 120 V AC; 50 mA at 240 V AC
Inrush current, max.	20 A; at 264 V

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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	Permissible range: 20.4V to 28.8V

Power loss	
Power loss, typ.	14 W

Memory	
Work memory	
• integrated	75 kbyte
• expandable	No
Load memory	
• integrated	4 Mbyte
Backup	
• present	Yes; maintenance-free
• without battery	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.	2.5 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.	10 kbyte
Flag	
• Number, max.	8 kbyte; Size of bit memory address area

Address area	
I/O address area	
• Inputs	1 024 byte
• Outputs	1 024 byte
Process image	
• Inputs, adjustable	1 kbyte
• Outputs, adjustable	1 kbyte

Hardware configuration	

Number of modules per system, max.	3 communication modules, no signal board can be used, 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 current

● for signal "1", typ.	1 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 technological functions

— parameterizable	Yes; Single phase : 3 at 100 kHz & 3 at 30 kHz, differential: 3 at 80 kHz & 3 at 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; Relays
Short-circuit protection	No; to be provided externally

Switching capacity of the outputs

● with resistive load, max.	2 A
● on lamp load, max.	30 W with DC, 200 W with AC

Output delay with resistive load

• "0" to "1", max.	10 ms; max.
• "1" to "0", max.	10 ms; max.
Switching frequency	
• of the pulse outputs, with resistive load, max.	1 Hz
Relay outputs	
• Number of relay outputs	10
• Number of operating cycles, max.	mechanically 10 million, at rated load voltage 100 000
Cable length	
• shielded, max.	500 m
• unshielded, max.	150 m

Analog inputs	
Number of analog inputs	2
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

Analog value generation for the inputs	
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
Protocols	
• PROFINET IO Controller	Yes

Protocols	

Supports protocol for PROFINET IO	Yes
PROFIBUS	Yes
AS-Interface	Yes
Protocols (Ethernet)	
• TCP/IP	Yes
Open IE communication	
• TCP/IP	Yes
• ISO-on-TCP (RFC1006)	Yes
• UDP	Yes
Web server	
• supported	Yes
• User-defined websites	Yes
Further protocols	
• MODBUS	Yes

Communication functions

S7 communication	
• supported	Yes
• as server	Yes
• as client	Yes

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

Integrated Functions

Number of counters	6
Counting frequency (counter) max.	100 kHz
Frequency measurement	Yes
controlled positioning	Yes
PID controller	Yes
Number of alarm inputs	4

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	Relays

• between the channels	No
• between the channels, in groups of	2

Permissible potential difference

between different circuits	500 V DC between 24 V DC and 5 V DC

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.	-40 °C; = Tmin; Startup @ -25 °C
• max.	70 °C; = Tmax; > +60 °C Number of simultaneously controllable inputs and outputs max. 50%; no signal board can be used
• horizontal installation, min.	-40 °C; = Tmin (incl. condensation/frost); start-up @ -25 °C
• horizontal installation, max.	70 °C; = Tmax; > +60 °C Number of simultaneously controllable inputs and outputs max. 50%; no signal board can be used
• vertical installation, min.	-40 °C; = Tmin; Startup @ -25 °C
• vertical installation, max.	50 °C; = Tmax
• At cold restart, min.	-25 °C

Ambient temperature during storage/transportation

• min.	-40 °C

● max.	70 °C
Altitude during operation relating to sea level	
● Installation altitude above sea level, max.	2 000 m
● Ambient air temperature-barometric pressure-altitude	Tmin ... Tmax at 1 140 hPa ... 795 hPa (-1 000 m ... +2 000 m) // Tmin ... (Tmax - 10 K) at 795 hPa ... 658 hPa (+2 000 m ... +3 500 m) // Tmin ... (Tmax - 20 K) at 658 hPa ... 540 hPa (+3 500 m ... +5 000 m); above 2 000 m max. 132 V AC
Relative humidity	
● With condensation, tested in accordance with IEC 60068-2-38, max.	100 %; RH incl. condensation/frost (no commissioning under condensation conditions)
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
Resistance	
Coolants and lubricants	
— Resistant to commercially available coolants and lubricants	Yes; Incl. diesel and oil droplets in the air
Use in stationary industrial systems	
— to biologically active substances according to EN 60721-3-3	Yes; Class 3B2 mold, fungus and dry rot spores (with the exception of fauna); Class 3B3 on request
— to chemically active substances according to EN 60721-3-3	Yes; Class 3C4 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *
— to mechanically active substances according to EN 60721-3-3	Yes; Class 3S4 incl. sand, dust, *
Use on ships/at sea	
— to biologically active substances according to EN 60721-3-6	Yes; Class 6B2 mold and fungal spores (excluding fauna); Class 6B3 on request
— to chemically active substances according to EN 60721-3-6	Yes; Class 6C3 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *
— to mechanically active substances according to EN 60721-3-6	Yes; Class 6S3 incl. sand, dust; *
Remark	
— Note regarding classification of environmental conditions acc. to EN 60721, EN 60654-4 and ANSI/ISA-71.04	* The supplied plug covers must remain in place over the unused interfaces during operation!
Conformal coating	
● Coatings for printed circuit board assemblies acc. to EN 61086	Yes; Class 2 for high availability
● Protection against fouling acc. to EN 60664-3	Yes; Type 1 protection
● Military testing according to MIL-I-46058C, Amendment 7	Yes; Discoloration of coating possible during service life

• Qualification and Performance of Electrical Insulating Compound for Printed Board Assemblies according to IPC-CC-830A	Yes; Conformal coating, Class A

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.	455 g
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