

6ES7214-1HG31-0XB0

CPU 1214C, DC/DC/RELAY, 14DI/10DO/2AI

SIMATIC S7-1200, CPU 1214C, COMPACT CPU, DC/DC/RELAY, ONBOARD I/O: 14 DI 24V DC; 10 DO RELAY 2A; 2 AI 0 - 10V DC, POWER SUPPLY: AC 20.4 - 28.8 V DC, PROGRAM/DATA MEMORY: 75 KB

General information	
Engineering with	
Programming package	As of STEP 7 V11.0 SP2
Supply voltage	
24 V DC	Yes
permissible range, lower limit (DC)	20.4 V
permissible range, upper limit (DC)	28.8 V
Load voltage L+	
Rated value (DC)	24 V
permissible range, lower limit (DC)	5 V
permissible range, upper limit (DC)	250 V
Input current	
Current consumption (rated value)	500 mA; Typical
Current consumption, max.	1.2 A; 24 V DC
Inrush current, max.	12 A; at 28.8 V
Encoder supply	
24 V encoder supply	
24 V	Permissible range: 20.4 to 28.8 V
Output current	
Current output to backplane bus (DC 5 V), max.	1600 mA; 5 VDC max. for SM and CM
Power losses	
Power loss, typ.	12 W
Memory	
Usable memory for user data	75 kbyte
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, min.	0.085 μ s; / instruction
for word operations, min.	1.7 μ s; / instruction
for floating point arithmetic, min.	2.5 μ s; / 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 in total (incl. times, counters, flags), max.	10 kbyte
Flag	
Number, max.	8 kbyte; Size of bit memory address area
Address area	
I/O address area	
I/O address area, overall	1024 bytes for inputs / 1024 bytes for outputs
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 clock)	Yes
Deviation per day, max.	60 s/month at 25 °C
Backup time	480 h; Typical
Digital inputs	
Number/binary inputs	14; integrated
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 VDC 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, 0.4, 0.8, 1.6, 3.2, 6.4, 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	
Cable length, shielded, max.	500 m; 50 m for technological functions
Cable length unshielded,	300 m; For technological functions: No

max.

Digital outputs

Number/binary outputs	10; Relay
integrated channels (DO)	10
Functionality/short-circuit strength	No; to be provided externally

Switching capacity of the outputs

with resistive load, max.	2 A
on lamp load, max.	30 W DC; 200 W 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
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Relay outputs

Max. number of relay outputs, integrated	
Number of relay outputs	10
Number of operating cycles, max.	mechanically 10 million, at rated load voltage 100,000

Cable length

Cable length, shielded, max.	500 m
Cable length unshielded, max.	150 m

Analog inputs

Integrated channels (AI)	2; 0 to 10 V
Number of analog inputs	2

Input ranges

Voltage	Yes
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Input ranges (rated values), voltages

0 to +10 V	Yes
Input resistance (0 to 10 V)	≥100k ohms

Cable length

Cable length, shielded, max.	100 m; twisted and shielded
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Analog value creation

Integrations 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
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1st interface

Type of interface	PROFINET
Physics	Ethernet
Isolated	Yes
Automatic detection of transmission speed	Yes

Autonegotiation	Yes
Autocrossing	Yes
Functionality	
PROFINET IO Controller	Yes
2nd interface	
DP master	
Services	
S7 communication	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
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
Counter frequency (counter) max.	100 kHz
Frequency meter	Yes
controlled positioning	Yes
PID controller	Yes
Number of alarm inputs	4
Galvanic isolation	
Galvanic isolation digital inputs	
Galvanic isolation digital inputs	500 V AC for 1 minute
between the channels, in groups of	1
Galvanic isolation digital outputs	
Galvanic isolation digital outputs	Relay
between the channels	No
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	Yes

61000-4-2	
Test voltage at air discharge	8 kV
Test voltage at contact discharge	6 kV
Interference immunity to cable-borne interference	
on the supply lines acc. to IEC 61000-4-4	Yes
Interference immunity on signal lines acc. to IEC 61000-4-4	Yes
Surge immunity	
on the supply lines acc. to IEC 61000-4-5	Yes
Immunity against conducted interference 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	
Emission of radio interferences acc. to EN 55 011 (limit class A)	Yes; Group 1
Emission of radio interference acc. to EN 55 011 (limit class B)	Yes; When appropriate measures are used to ensure compliance with the limits for Class B according to EN 55011
Degree and class of protection	
IP20	Yes
Standards, approvals, certificates	
CE mark	Yes
CSA approval	Yes
UL approval	Yes
cULus	Yes
C-TICK	Yes
FM approval	Yes
Marine approval	Yes
Ambient conditions	
Operating temperature	
Min.	-20 °C
max.	60 °C
horizontal installation, min.	-20 °C
horizontal installation, max.	60 °C
vertical installation, min.	-20 °C
vertical installation, max.	50 °C
Storage/transport temperature	
Min.	-40 °C
max.	70 °C
Air pressure	
Operation, min.	795 hPa
Operation, max.	1080 hPa
Storage/transport, min.	660 hPa
Storage/transport, max.	1080 hPa
Relative humidity	
Operation, max.	95 %; no condensation

Vibrations	
Vibrations	2G wall mounting, 1G DIN rail
Operation, checked according to IEC 60068-2-6	Yes
Shock test	
checked 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
Climatic and mechanical conditions for storage and transport	
Climatic conditions for storage and transport	
Free fall	
Drop height, max. (in packaging)	0.3 m; five times, in dispatch package
Temperature	
Permissible temperature range	-40 °C to +70 °C
Mechanical and climatic conditions during operation	
Climatic conditions in operation	
Temperature	
Min.	-20 °C
max.	60 °C
Air pressure acc. to IEC 60068-2-13	
Permissible air pressure	1080 to 795 hPa
Permissible operating height	-1000m to 2000m
Pollutant concentrations	
SO2 at RH < 60% without condensation	SO2: < 0.5 ppm; H2S: < 0.1 ppm; RH < 60% condensation-free
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
Weight	
Weight, approx.	435 g
Status	Nov 10, 2012