SIEMENS

Industry Automation and Drive Technologies Service & Support

6ES7214-1AE30-0XB0 CPU 1214C 14DI/10DO/2AI

Technical / CAx data

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SIMATIC S7-1200, CPU 1214C, 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: 50 KB

General information	
associated programming package	STEP 7 V10.5 or higher
Display	
Integrated	No
Supply voltage	
Input 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)	20.4 V
permissible range, upper limit (DC)	28.8 V
Input current	
Current consumption, max.	1.5 A; 24 VDC
Inrush current, max.	12 A; at 28.8 V DC
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; Max. 5 V DC for SM and CM
Power losses	
Power loss, typ.	12 W
Memory	
Usable memory for user data	50 kbyte
Work memory	

integrated	50 kbyte
expandable	No
Load memory	
integrated	2 Mbyte
expandable, max.	24 Mbyte; with SIMATIC memory card
Backup	
present	Yes; entire project maintenance-free in the integral EEPROM
without battery	Yes
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
CPU processing times	
for bit operations, min.	0.1 µs; / Operation
for word operations, min.	12 µs; / Operation
for floating point arithmetic, min.	18 µs; / Operation
Data areas and their retentivity	
retentive data area in total (incl. times, counters, flags), max.	2048 byte
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
Inputs	1024 byte
Outputs	1024 byte
Process image	
Inputs, adjustable	1 kbyte
Outputs, adjustable	1 kbyte
Digital channels	
integrated channels (DI)	14
integrated channels (DO)	10
Analog channels	
Integrated channels (AI)	2
Integrated channels (AO)	0
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
Backup time	240 h; Typical
Digital inputs	
Number of digital inputs	14; Integrated
of which, inputs usable for technological functions	6; HSC (High Speed Counting)
m/p-reading	Yes
Input voltage	
Rated value, DC	24 V
for signal "0"	5 VDC 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 at 100 kHz & 1 at 30 kHz, differential: 3 at 80 kHz & 1 at 30 kHz
Cable length	
Cable length, shielded, max.	500 m; 50 m for technological functions
Cable length unshielded, max.	300 m; For technological functions: No
Digital outputs	
Number of digital outputs	10
of which high-speed outputs	2; 100 kHz Pulse Train Output
Short-circuit protection	No; to be provided externally
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 "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	
Cable length, shielded, max.	500 m
Cable length unshielded, max.	150 m
Analog inputs	
Number of analog inputs	2
Cable length, shielded, max.	100 m; twisted and shielded
Input ranges	
Voltage	Yes
Input ranges (rated values), voltages	
0 to +10 V	Yes
Input resistance (0 to 10 V)	⩾100k ohms
Analog outputs	
Cable length	
Cable length, shielded, max.	100 m; Shielded, twisted wire pair
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 BEROS	Yes
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
Communication functions	
S7 communication	
supported	Yes
as server	Yes
Open IE communication	
TCP/IP	Yes
ISO-on-TCP (RFC1006)	Yes
Web server	
supported	Yes
User-defined websites	Yes
Number of connections	
overall	15; dynamically
Test commissioning functions	
Status/control	
Status/control variable	Yes
Variables	Inputs/outputs, memory bits, DB, distributed I/Os, timers, counters
Forcing	
Forcing	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
Number of pulse outputs	2
Limit frequency (pulse)	100 kHz
Galvanic isolation	
Galvanic isolation digital inputs	
Galvanic isolation digital inputs	No
between the channels, in groups of	1
Galvanic isolation digital outputs	
Galvanic isolation digital outputs	Yes
between the channels	No
between the channels, in groups of	2
Permissible potential difference	
between different circuits	500 VDC between 24 VDC and 5 VDC
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	
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
Ambient conditions	
Operating temperature	
Min.	0 ℃
max.	55 ℃
vertical installation, min.	0 ℃
vertical installation, max.	45 ℃
horizontal installation, min.	0 ℃
horizontal installation, max.	55 ℃
Storage/transport temperature	
Min.	-40 ℃
max.	70 ℃
Air pressure	
Operation, min.	795 hPa
Operation, min.	795 hPa
Operation, max.	1080 hPa
Operation, max.	1080 hPa
Storage/transport, min.	660 hPa
Storage/transport, min.	660 hPa
Storage/transport, max.	1080 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 ℃ to +70 ℃
Mechanical and climatic conditions during operation	
Climatic conditions in operation	
Temperature	
permissible temperature change	5°C to 55°, 3°C/minute
Air pressure acc. to IEC 60068-2-13	
Permissible air pressure	1080 to 795 hPa
Permissible operating height	-1000 to 2000 m
Pollutant concentrations	
SO2 at RH < 60% without condensation	S02: < 0.5 ppm; H2S: < 0.1 ppm; RH < 60% condensation-free
Degree and class of protection	
IP20	Yes
Standards, approvals, certificates	
CE mark	Yes
cULus	Yes
C-TICK	Yes
FM approval	Yes
Configuration	

Configuration software	
STEP 7	STEP 7 V10.5 or higher
programming	
Programming language	
LAD	Yes
FBD	Yes
SCL	Yes
Cycle time monitoring	
can be set	Yes
Dimensions and weight	
Dimensions	
Width	110 mm
Height	100 mm
Depth	75 mm
Weight	
Weight, approx.	415 g
Status	May 31, 2011