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Data sheet 6ES7215-1AG31-0XB0

SIMATIC S7-1200, CPU 1215C, compact CPU, DC/DC/DC, 2 PROFINET ports, onboard I/O: 14 DI 24 V DC; 10 DO 24 V DC; 0.5A; 2 AI 0-10 V DC, 2 AO 0-20 mA DC, Power supply: DC 20.4-28.8V DC, Program/data memory 100 KB



General information	
Product type designation	CPU 1215C DC/DC/DC
Engineering with	
● Programming package	STEP 7 V11 SP2 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
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.	1 500 mA; 24 V DC
Inrush current, max.	12 A; at 28.8 V DC
Output current	
for backplane bus (5 V DC), max.	1 600 mA; Max. 5 V DC for SM and CM
Power loss	
Power loss, typ.	12 W
Storage	
Work memory	
● integrated	100 kbyte
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

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Data areas and their retentivity	
Retentive data area (incl. timers, counters, flags), max.	10 kbyte
Flag	
● Size, 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 comm. modules, 1 signal board, 8 signal modules
● number of expansion boards (SB, CB, BB)	1
● number of signal modules (SM)	8
● number of communications modules (CM)	3
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)
Sourcing/sinking 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	Yes; 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
● of which high-speed outputs	4; 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 "0", max.	0.1 V; with 10 kOhm load
● for signal "1", min.	20 V

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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
Relay outputs	
● Number of relay outputs	0
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	2
Output ranges, current	
● 0 to 20 mA	Yes
Cable length	
● shielded, max.	100 m; shielded, twisted pair
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
Analog value generation for the outputs	
Integration and conversion time/resolution per channel	
● Resolution with overrange (bit including sign), max.	10 bit
Encoder	
Connectable encoders	
● 2-wire sensor	Yes
Interfaces	
Number of PROFINET interfaces	2
1. Interface	
Interface type	PROFINET
Isolated	Yes
automatic detection of transmission rate	Yes
Autonegotiation	Yes
Autocrossing	Yes
Interface types	
● RJ 45 (Ethernet)	Yes
Protocols	
● PROFINET IO Controller	Yes
2. Interface	
Interface type	PROFINET
Interface types	
● RJ 45 (Ethernet)	Yes
Protocols	
Supports protocol for PROFINET IO	Yes
PROFIsafe	No

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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
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
Integrated Functions	
Counter	
● Number of counters	6
● Counting frequency, max.	100 kHz
Frequency measurement	Yes
controlled positioning	Yes
PID controller	Yes
Number of alarm inputs	4
Number of pulse outputs	4
Potential separation	
Potential separation digital inputs	
● Potential separation digital inputs	500 V 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
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	

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● Interference immunity on 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	
IP degree of protection	IP20
Standards, approvals, certificates	
CE mark	Yes
CSA approval	Yes
UL approval	Yes
cULus	Yes
FM approval	Yes
RCM (formerly C-TICK)	Yes
Marine approval	Yes
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
● 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.	2 000 m
Relative humidity	
● Operation, max.	95 %; no condensation
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
Pollutant concentrations	
● SO2 at RH < 60% without condensation	S02: < 0.5 ppm; H2S: < 0.1 ppm; RH < 60 % condensation-free
Configuration	
Programming	
Programming language	
— LAD	Yes
— FBD	Yes
— SCL	Yes
Cycle time monitoring	
● can be set	Yes
Dimensions	

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Width	130 mm
Height	100 mm
Depth	75 mm

Weights

Weight, approx.	520 g

Classifications

	Version	Classification
eClass	16	27-24-22-07
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
ETIM	10	EC000236
ETIM	9	EC000236
ETIM	8	EC000236
ETIM	7	EC000236
IDEA	4	3565
UNSPSC	15	32-15-17-05

Approvals / Certificates

General Product Approval

Miscellaneous | Manufacturer Declaration | Metrological Approval

General Product Approval

China RoHS | Manufacturer Declaration

EMV

For use in hazardous locations

For use in hazardous locations

FM | Miscellaneous | CCC-Ex

Maritime application

Maritime application

NK / Nippon Kaiji Kyokai | CCS (China Classification Society) | KR (Korean Register of Shipping)

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