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Data sheet 6AG1215-1BG40-5XB0

Figure similar

SIPLUS S7-1200 CPU 1215C AC/DC/relay based on 6ES7215-1BG40-0XB0 with conformal coating, -40…+60 °C, start up -25 °C, compact CPU, AC/DC/relay, 2 PROFINET ports onboard I/O: 14 DI 24 V DC; 10 DQ relay 2 A; 2 AI 0-10 V DC, 2 AQ 0-20 mA DC power supply: AC 85-264 V AC @ 47-63 Hz, program/data memory 125 KB

General information	
Product type designation	CPU 1215C AC/DC/relay
based on	6ES7215-1BG40-0XB0
Engineering with	
● STEP 7 TIA Portal configurable/integrated from version	see entry ID: 109746275
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)	265 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
Current consumption, max.	300 mA at 120 V AC; 150 mA at 240 V AC
Inrush current, max.	20 A; at 264 V
I^2t	0.8 $A^2 \cdot s$
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	20.4 to 28.8V
Power loss	
Power loss, typ.	14 W
Memory	
Work memory	
● integrated	100 kbyte
Load memory	
● integrated	4 Mbyte
● Plug-in (SIMATIC Memory Card), max.	with SIMATIC memory card
Backup	
● present	Yes
● maintenance-free	Yes
● without battery	Yes
CPU processing times	
for bit operations, typ.	0.08 µs; / instruction

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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	
● Number, max.	Limited only by RAM for code
Data areas and their retentivity	
Retentive data area (incl. timers, counters, flags), max.	14 kbyte
Flag	
● Size, max.	8 kbyte; Size of bit memory address area
Local data	
● per priority class, max.	16 kbyte; Priority class 1 (program cycle): 16 KB, priority class 2 to 26: 6 KB
Address area	
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)	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 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; Relays
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.
Relay outputs	
● Number of relay outputs	10

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● 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	2
Output ranges, current	
● 0 to 20 mA	Yes
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
Isolated	Yes
automatic detection of transmission rate	Yes
Autonegotiation	Yes
Autocrossing	Yes
Interface types	
● RJ 45 (Ethernet)	Yes
● Number of ports	2
● integrated switch	Yes
Protocols	
● PROFINET IO Controller	Yes
● PROFINET IO Device	Yes
● SIMATIC communication	Yes
● Open IE communication	Yes; Optionally also encrypted
● Web server	Yes
● Media redundancy	Yes
PROFINET IO Controller	
● Transmission rate, max.	100 Mbit/s
Services	
— PG/OP communication	Yes; encryption with TLS V1.3 pre-selected
— Isochronous mode	No
— IRT	No
— PROFIenergy	No
— Prioritized startup	Yes
— Number of IO devices with prioritized startup, max.	16
— Number of connectable IO Devices, max.	16
— Number of connectable IO Devices for RT, max.	16
— of which in line, max.	16
— Activation/deactivation of IO Devices	Yes
— Number of IO Devices that can be simultaneously activated/deactivated, max.	8
— Updating time	The minimum value of the update time also depends on the communication component set for PROFINET IO, on the number of IO devices and the quantity

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	of configured user data.
PROFINET IO Device	
Services	
— PG/OP communication	Yes; encryption with TLS V1.3 pre-selected
— Isochronous mode	No
— IRT	No
— PROFIenergy	Yes
— Shared device	Yes
— Number of IO Controllers with shared device, max.	2
Protocols	
Supports protocol for PROFINET IO	Yes
PROFIsafe	No
PROFIBUS	Yes; CM 1243-5 (master) or CM 1242-5 (slave) required
OPC UA	Yes; OPC UA Server
AS-Interface	Yes; CM 1243-2 required
Protocols (Ethernet)	
● TCP/IP	Yes
● DHCP	No
● SNMP	Yes
● DCP	Yes
● LLDP	Yes
Redundancy mode	
Media redundancy	
— MRP	Yes; as MRP redundancy manager and/or MRP client
— MRPD	No
SIMATIC communication	
● S7 routing	Yes
Open IE communication	
● TCP/IP	Yes
— Data length, max.	8 kbyte
● ISO-on-TCP (RFC1006)	Yes
— Data length, max.	8 kbyte
● UDP	Yes
— Data length, max.	1 472 byte
Web server	
● supported	Yes
● User-defined websites	Yes
OPC UA	
● Runtime license required	Yes; "Basic" license required
● OPC UA Server	Yes; data access (read, write, subscribe), method call, runtime license required
— Application authentication	Available security policies: None, Basic128Rsa15, Basic256Rsa15, Basic256Sha256
— User authentication	"anonymous" or by user name & password
— Number of sessions, max.	10
— Number of subscriptions per session, max.	5
— Sampling interval, min.	100 ms
— Publishing interval, min.	200 ms
— Number of server methods, max.	20
— Number of monitored items, recommended max.	1 000
— Number of server interfaces, max.	2
— Number of nodes for user-defined server interfaces, max.	2 000
Further protocols	
● MODBUS	Yes
Communication functions	
S7 communication	
● supported	Yes
● as server	Yes
● as client	Yes

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● User data per job, max.	See online help (S7 communication, user data size)
Number of connections	
● overall	PG Connections: 4 reserved / 4 max; HMI Connections: 12 reserved / 18 max; S7 Connections: 8 reserved / 14 max; Open User Connections: 8 reserved / 14 max; Web Connections: 2 reserved / 30 max; OPC UA Connections: 0 reserved / 10 max; Total Connections: 34 reserved / 68 max
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
● Memory size per trace, max.	512 kbyte
Interrupts/diagnostics/status information	
Diagnostics indication LED	
● RUN/STOP LED	Yes
● ERROR LED	Yes
● MAINT LED	Yes
Integrated Functions	
Counter	
● Number of counters	6
● Counting frequency, max.	100 kHz
Frequency measurement	Yes
controlled positioning	Yes
Number of position-controlled positioning axes, max.	8
Number of positioning axes via pulse-direction interface	Up to 4 with SB 1222
PID controller	Yes
Number of alarm inputs	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	Relays
● between the channels	No
● between the channels, in groups of	2
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	
● 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

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Degree and class of protection	
IP degree of protection	IP20
Standards, approvals, certificates	
Siemens Eco Profile (SEP)	Siemens EcoTech
Ecological footprint	
● environmental product declaration	Yes; type II acc. to ISO 14021
Global warming potential	
— global warming potential, (total) [CO2 eq]	106 kg
— global warming potential, (during production) [CO2 eq]	18.5 kg
— global warming potential, (during operation) [CO2 eq]	88.2 kg
— global warming potential, (after end of life cycle) [CO2 eq]	-1.1 kg
Ambient conditions	
Free fall	
● Fall height, max.	0.3 m; five times, in product package
Ambient temperature during operation	
● min.	-40 °C; = Tmin (incl. condensation/frost); start-up @ -25 °C
● max.	60 °C; = Tmax; Tmax > +55 °C number of simultaneously switched-on digital inputs 7, digital outputs 5, analog inputs 2, analog outputs 2 (no adjacent points) with horizontal mounting position
● 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; *
Usage in industrial process technology	
— Against chemically active substances acc. to EN 60654-4	Yes; Class 3 (excluding trichlorethylene)
— Environmental conditions for process, measuring and control systems acc. to ANSI/ISA-71.04	Yes; Level GX group A/B (excluding trichlorethylene; harmful gas concentrations up to the limits of EN 60721-3-3 class 3C4 permissible); level LC3 (salt spray) and level LB3 (oil)

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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 reliability
● 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
Know-how protection	
● User program protection/password protection	Yes
● Copy protection	Yes
● Block protection	Yes
Access protection	
● protection of confidential configuration data	Yes
● Protection level: Write protection	Yes
● Protection level: Read/write protection	Yes
● Protection level: Complete protection	Yes
● User administration	Yes; device-wide
● Number of users	42
● Number of groups	14
● Number of roles	20
Cycle time monitoring	
● adjustable	Yes
Dimensions	
Width	130 mm
Height	100 mm
Depth	75 mm
Weights	
Weight, approx.	550 g

Classifications

	Version	Classification
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

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Manufacturer Declaration			China RoHS	Metrological Approval

EMV	Maritime application	Environment
KC		

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