SIEMENS

Data sheet

6AG1215-1BG40-5XB0

SIPLUS S7-1200 CPU 1215C AC/DC/relay -40...+60°C with conformal coating based on 6ES7215-1BG40-0XB0 . compact CPU, AC/DC/relay, 2 PROFINET "ports onboard I/O: ""14 DI 24 V" "DC; 10 DO relay 2 A; 2 AI 0-10" V DC, 2 AO 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
Firmware version	V4.1
Engineering with	
 Programming package 	STEP 7 V13 SP1 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)	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

Encoder supply	
24 V encoder supply	
• 24 V	20.4 to 28.8V
Power loss	
Power loss, typ.	12 W
Memory	
Work memory	
• integrated	100 kbyte
• expandable	No
Load memory	
• integrated	4 Mbyte
 Plug-in (SIMATIC Memory Card), max. 	with SIMATIC memory card
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	
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	44 laboursed
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 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.
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	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), 	10 bit
max.	
 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), 	10 bit
max.	
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
PROFINET IO Device	Yes; Also simultaneously with IO-Device functionality
PROFINET IO Controller	

Supports protocol for PROFINET IO Yes PROFIBUS Yes; CM 1243-5 required AS-Interface Yes Protocols (Ethernet) Yes • TCP/IP Yes Open IE communication Yes • TCP/IP Yes • UDP Yes • Usor-offined websites Yes Further protocols Yes • MODBUS Yes Sommunication functions Yes Status/control Yes • supported Yes • as server Yes • as client Yes Number of connections Inputs/outputs, memory bits, DBs, distributed I/Os, timers, counters Status/control Yes • Variables Inputs/outputs, memory bits, DBs, distributed I/Os, timers, counters Forcing Yes Diagnostic buffer Yes • present Yes Traces	Services	
PROFINET IO Device Yes Services Yes - Number of IO Controllers with shared device, max. 2 Protocols Yes Supports protocol for PROFINET IO Yes PROFIBUS Yes; CM 1243-5 required AS-Interface Yes Protocols Yes Open Ecommunication Yes • TCP/IP Yes • UDP Yes • Suported Yes • sa server </td <td>— Number of connectable IO Devices, max.</td> <td>16</td>	— Number of connectable IO Devices, max.	16
Shared deviceYesNumber of IO Controllers with shared device, max.2Supports protocol for PROFINET IOYesPROFIBUSYes; CM 1243-5 requiredAS-InterfaceYesProtocols (Ethernet)YesTCP/IPYesTCP/IPYesOpen IE communicationYesTCP/IPYesShared mebbraYesShared mebbraYes <trr>Shared mebbraYes<</trr>	PROFINET IO Device	
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 Variables Inputs/outputs, memory bits, DBs, distributed I/Os, timers, counters Forcing Forcing Yes Diagnostic buffer o present Yes Yes Traces Yus Yes Yes 		
counters Forcing Yes o Forcing buffer Yes o present Yes Traces Yes • Number of configurable Traces 2; Up to 512 KB of data per trace are possible	Status/control variable	Yes
• Forcing Yes Diagnostic buffer Yes • present Yes Traces 2; Up to 512 KB of data per trace are possible	• Variables	
• Forcing Yes Diagnostic buffer Yes • present Yes Traces 2; Up to 512 KB of data per trace are possible	Forcing	
Diagnostic buffer • present Yes Traces • Number of configurable Traces 2; Up to 512 KB of data per trace are possible		Yes
Present Yes Traces Vumber of configurable Traces 2; Up to 512 KB of data per trace are possible		
• Number of configurable Traces 2; Up to 512 KB of data per trace are possible		Yes
Number of configurable Traces 2; Up to 512 KB of data per trace are possible		
ntegrated Functions		2; Up to 512 KB of data per trace are possible
	ntegrated Functions	

Number of counters	6
Counting frequency (counter) max.	100 kHz
Frequency measurement	Yes
controlled positioning	Yes
Number of position-controlled positioning axes, max.	8
Number of positioning axes via pulse-direction	Up to 4 with SB 1222
interface	
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
EMC	
Interference immunity against discharge of static electric	city
 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 distur	bance 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
Ambient conditions	
Free fall	

• Fall height, max.	0.3 m; five times, in product package
Ambient temperature during operation	
• min. • max.	-40 °C; = Tmin (incl. condensation/frost); start-up @ -25 °C 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	40.40
• min.	-40 °C
• max.	70 °C
Altitude during operation relating to sea level	2 000 m
 Installation altitude above sea level, max. 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)
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
Cycle time monitoring	
• adjustable	Yes
Dimensions	
Width	130 mm
Height	100 mm
Depth	75 mm
Weights	
Weight, approx.	550 g
last modified:	05/15/2020