SIEMENS

Datasheet

6ES7215-1AG40-0XB0



SIMATIC S7-1200, CPU 1215C, COMPACT CPU, DC/DC/DC, 2 PROFINET PORT, ONBOARD I/O: 14 DI 24V DC; 10 DO 24V DC 0.5A 2 AI 0-10V DC, 2 AO 0-20MA DC, POWER SUPPLY: DC 20.4 -28.8 V DC, PROGRAM/DATA MEMORY: 100 KB

with display Supply voltage Rated value (DC) • 24 V DC permissible range, lower limit (DC) Load voltage L+ • Rated value (DC) • permissible range, upper limit (DC) permissible range, upper limit (DC) 28.8 V Load voltage L+ • Rated value (DC) • permissible range, lower limit (DC) permissible range, upper limit (DC) • permissible range, upper limit (DC) • permissible range, upper limit (DC) • permissible range, upper limit (DC) 128.8 V Input current Current consumption (rated value) Inrush current, max. 12 A; at 28.8 V DC Encoder supply 24 V encoder supply • 24 V Permissible range: 20.4V to 28.8V Output current Current output to backplane bus (DC 5 V), max. 1 600 mA; Max. 5 V DC for SM and CM Power losses Power losses Power loss, typ. 12 W Memory Type of memory EEPROM	Display	
Rated value (DC) • 24 V DC permissible range, lower limit (DC) permissible range, upper limit (DC) Load voltage L+ • Rated value (DC) • permissible range, lower limit (DC) 24 V • permissible range, lower limit (DC) • permissible range, lower limit (DC) • permissible range, upper limit (DC) • permissible range, upper limit (DC) 28.8 V Input current Current consumption (rated value) Inrush current, max. 12 A; at 28.8 V DC Encoder supply 24 V encoder supply • 24 V Permissible range: 20.4V to 28.8V Output current Current output to backplane bus (DC 5 V), max. 1 600 mA; Max. 5 V DC for SM and CM Power losses Power loss, typ. 12 W Memory	with display	No
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permissible range, lower limit (DC) permissible range, upper limit (DC) 28.8 V Input current Current consumption (rated value) Inrush current, max. 12 A; at 28.8 V DC Encoder supply 24 V encoder supply 24 V Permissible range: 20.4V to 28.8V Output current Current output to backplane bus (DC 5 V), max. 1 600 mA; Max. 5 V DC for SM and CM Power losses Power loss, typ. 12 W Memory	Load voltage L+	
Permissible range, upper limit (DC) 28.8 V Input current Current consumption (rated value) Inrush current, max. Encoder supply 24 V encoder supply • 24 V Output current Current output to backplane bus (DC 5 V), max. Power losses Power loss, typ. 12 8.8 V 28.8 V Encoder supply 12 A; at 28.8 V DC Permissible range: 20.4V to 28.8V 1600 mA; Max. 5 V DC for SM and CM Power losses Power loss, typ. 12 W Memory	Rated value (DC)	24 V
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Current consumption (rated value) Inrush current, max. 12 A; at 28.8 V DC Encoder supply 24 V encoder supply • 24 V Permissible range: 20.4V to 28.8V Output current Current output to backplane bus (DC 5 V), max. 1 600 mA; Max. 5 V DC for SM and CM Power losses Power loss, typ. 12 W Memory	• permissible range, upper limit (DC)	28.8 V
Inrush current, max. 12 A; at 28.8 V DC Encoder supply 24 V encoder supply • 24 V Permissible range: 20.4V to 28.8V Output current Current output to backplane bus (DC 5 V), max. 1 600 mA; Max. 5 V DC for SM and CM Power losses Power loss, typ. 12 W Memory	Input current	
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24 V encoder supply • 24 V Permissible range: 20.4V to 28.8V Output current Current output to backplane bus (DC 5 V), max. 1 600 mA; Max. 5 V DC for SM and CM Power losses Power loss, typ. 12 W Memory	Inrush current, max.	12 A; at 28.8 V DC
Permissible range: 20.4V to 28.8V Output current Current output to backplane bus (DC 5 V), max.	Encoder supply	
Output current Current output to backplane bus (DC 5 V), max. 1 600 mA; Max. 5 V DC for SM and CM Power losses Power loss, typ. 12 W Memory	24 V encoder supply	
Current output to backplane bus (DC 5 V), max. 1 600 mA; Max. 5 V DC for SM and CM Power losses Power loss, typ. 12 W Memory	• 24 V	Permissible range: 20.4V to 28.8V
Power losses Power loss, typ. 12 W Memory	Output current	
Power loss, typ. 12 W Memory	Current output to backplane bus (DC 5 V), max.	1 600 mA; Max. 5 V DC for SM and CM
Memory	Power losses	
<u> </u>	Power loss, typ.	12 W
Type of memory EEPROM	Memory	
	Type of memory	EEPROM

for bit operations, typ. for word operations, typ. for word operations, typ. 1.7 µs; / Operation for floating point arithmetic, typ. 2.3 µs; / Operation 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. Flag Number, max. 3 kbyte; Size of bit memory address area VIO address area VIO address area Inputs Outputs Outputs Outputs 1 024 byte Outputs, adjustable I kbyte Outputs, adjustable I kbyte I krown, modules, 1 signal board, 8 signal modules I me of day Clock Hardware clock (real-time clock) Deviation per day, max. I maximum number of modules area, per signal maximum number of modules area, per signal maximum number of modules area, per signal modules I keye I keye I kbyte I kbyt	Usable memory for user data	100 kbyte
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Load memory Integrated Plug-in (SIMATIC Memory Card), max. Pressent Persont	Integrated	125 kbyte
Integrated Plug-in (SIMATIC Memory Card), max. Backup present Present Ves; maintenance-free Ves Processing times for bit operations, typ. ODED processing times for bit operations, typ. ODED processing times ODED procesing times ODED processing times ODED processing times ODED processing ti	• expandable	No
Plug-in (SIMATIC Memory Card), max. 2 Gbyte; with SIMATIC memory card Present Prese	Load memory	
Backup present present without battery Pes Processing times for bit operations, typ. for floating point arithmetic, typ. DBs, FCs, FBs, counters and timers. The maximum number of addressable 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. Flag Number, max. 8 kbyte; Size of bit memory address area I/O address area I	Integrated	4 Mbyte
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• without battery Yes CPU processing times for bit operations, typ. O.085 µs; / Operation for word operations, typ. 1.7 µs; / Operation Operation for word operations, typ. 1.7 µs; / Operation Operation Operation Operation Operation Operation Operation Operation Operation 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. Flag • Number, max. 8 kbyte; Size of bit memory address area I/O address area	Backup	
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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. Flag Number, max. 8 kbyte; Size of bit memory address area No address area No address area I/O address area I/O address area Inputs Outputs I 024 byte Outputs Process image Inputs, adjustable I kbyte Outputs, adjustable I kbyte Outputs, adjustable I kbyte I kbyte Hardware configuration Number of modules per system, max. 3 comm. modules, 1 signal board, 8 signal modules Firme of day Clock Hardware clock (real-time clock) Pes Processioned Hardware clock (real-time clock) Pes Hardware day, max. Ho 60 s/month at 25 °C Hackup time	for floating point arithmetic, typ.	2.3 µs; / Operation
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 Inputs, adjustable Outputs, adjustable 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) Deviation per day, max. Backup time 1 kbyte 2 kbyte 4 8 osymptom <l< td=""><td>Outputs</td><td>1 024 byte</td></l<>	Outputs	1 024 byte
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) Deviation per day, max. Backup time 1 kbyte 1 kbyte 1 kbyte 1 kbyte	Process image	
Hardware configuration Number of modules per system, max. 3 comm. modules, 1 signal board, 8 signal modules Fime of day Clock Hardware clock (real-time clock) Deviation per day, max. Backup time Yes +/- 60 s/month at 25 °C 480 h; Typical	● Inputs, adjustable	1 kbyte
Number of modules per system, max. 3 comm. modules, 1 signal board, 8 signal modules Fime of day Clock Hardware clock (real-time clock) Deviation per day, max. Backup time 3 comm. modules, 1 signal board, 8 signal modules Yes +/- 60 s/month at 25 °C 480 h; Typical	Outputs, adjustable	1 kbyte
Clock • Hardware clock (real-time clock) • Deviation per day, max. • Backup time Yes +/- 60 s/month at 25 °C 480 h; Typical	Hardware configuration	
Clock • Hardware clock (real-time clock) • Deviation per day, max. • Backup time Yes +/- 60 s/month at 25 °C 480 h; Typical	Number of modules per system, max.	3 comm. modules, 1 signal board, 8 signal modules
 Hardware clock (real-time clock) Deviation per day, max. Backup time Yes +/- 60 s/month at 25 °C 480 h; Typical 	Time of day	
 Deviation per day, max. Backup time +/- 60 s/month at 25 °C 480 h; Typical 	Clock	
Backup time 480 h; Typical	 Hardware clock (real-time clock) 	Yes
	 Deviation per day, max. 	+/- 60 s/month at 25 °C
Digital inputs	Backup time	480 h; Typical
	Digital inputs	

Number of digital inputs	14; Integrated
of which, inputs usable for technological	6; HSC (High Speed Counting)
functions	5, 55 (3 5 process 5 3)
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	0.1 / 0.2 / 0.4 / 0.8 / 1.6 / 3.2 / 6.4 / 10.0 / 12.8 / 20.0 μs; 0.05 / 0.1
	/ 0.2 / 0.4 / 0.8 / 1.6 / 3.2 / 6.4 / 10.0 / 12.8 / 20.0 ms
— at "0" to "1", min.	0.1 µs
— at "0" to "1", max.	20 ms
for interrupt inputs	
— Parameterizable	Yes
for counter/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	
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	4; 100 kHz Pulse Train Output
integrated channels (DO)	10
short-circuit protection	No; to be provided externally
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
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.	3 µs
Switching frequency	
• of the pulse outputs, with resistive load, max.	100 kHz
Relay outputs	100 M IZ
	0
Max. number of relay outputs, integrated Cable length	0
Cable length	500 m
Cable length, shielded, max.	
Cable length unshielded, max.	150 m
Analog inputs	
Number of analog inputs	2
Integrated channels (AI)	2; 0 to 10 V
Input ranges	
Voltage	Yes
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
Analan autouta	
Analog outputs	
Number of analog outputs	2
	2 2; 0 to 20 mA
Number of analog outputs	
Number of analog outputs Integrated channels (AO)	
Number of analog outputs Integrated channels (AO) Cable length	2; 0 to 20 mA
Number of analog outputs Integrated channels (AO) Cable length Cable length, shielded, max.	2; 0 to 20 mA
Number of analog outputs Integrated channels (AO) Cable length • Cable length, shielded, max. Analog value creation	2; 0 to 20 mA
Number of analog outputs Integrated channels (AO) Cable length Cable length, shielded, max. Analog value creation Integration and conversion time/resolution per channel	2; 0 to 20 mA 100 m; Shielded, twisted wire pair
Number of analog outputs Integrated channels (AO) Cable length • Cable length, shielded, max. Analog value creation Integration and conversion time/resolution per channel • Resolution with overrange (bit including sign),	2; 0 to 20 mA 100 m; Shielded, twisted wire pair
Number of analog outputs Integrated channels (AO) Cable length • Cable length, shielded, max. Analog value creation Integration and conversion time/resolution per channel • Resolution with overrange (bit including sign), max.	2; 0 to 20 mA 100 m; Shielded, twisted wire pair 10 bit
Number of analog outputs Integrated channels (AO) Cable length • Cable length, shielded, max. Analog value creation Integration and conversion time/resolution per channel • Resolution with overrange (bit including sign), max. • Integration time, parameterizable • Conversion time (per channel) Encoder	2; 0 to 20 mA 100 m; Shielded, twisted wire pair 10 bit Yes
Number of analog outputs Integrated channels (AO) Cable length • Cable length, shielded, max. Analog value creation Integration and conversion time/resolution per channel • Resolution with overrange (bit including sign), max. • Integration time, parameterizable • Conversion time (per channel)	2; 0 to 20 mA 100 m; Shielded, twisted wire pair 10 bit Yes 625 µs
Number of analog outputs Integrated channels (AO) Cable length • Cable length, shielded, max. Analog value creation Integration and conversion time/resolution per channel • Resolution with overrange (bit including sign), max. • Integration time, parameterizable • Conversion time (per channel) Encoder	2; 0 to 20 mA 100 m; Shielded, twisted wire pair 10 bit Yes
Number of analog outputs Integrated channels (AO) Cable length Cable length, shielded, max. Analog value creation Integration and conversion time/resolution per channel Resolution with overrange (bit including sign), max. Integration time, parameterizable Conversion time (per channel) Encoder Connectable encoders 2-wire sensor	2; 0 to 20 mA 100 m; Shielded, twisted wire pair 10 bit Yes 625 µs
Number of analog outputs Integrated channels (AO) Cable length Cable length, shielded, max. Analog value creation Integration and conversion time/resolution per channel Resolution with overrange (bit including sign), max. Integration time, parameterizable Conversion time (per channel) Encoder Connectable encoders 2-wire sensor	2; 0 to 20 mA 100 m; Shielded, twisted wire pair 10 bit Yes 625 µs
Number of analog outputs Integrated channels (AO) Cable length Cable length, shielded, max. Analog value creation Integration and conversion time/resolution per channel Resolution with overrange (bit including sign), max. Integration time, parameterizable Conversion time (per channel) Encoder Connectable encoders 2-wire sensor	2; 0 to 20 mA 100 m; Shielded, twisted wire pair 10 bit Yes 625 μs
Number of analog outputs Integrated channels (AO) Cable length Cable length, shielded, max. Analog value creation Integration and conversion time/resolution per channel Resolution with overrange (bit including sign), max. Integration time, parameterizable Conversion time (per channel) Encoder Connectable encoders 2-wire sensor 1. Interface Interface type Physics Isolated	2; 0 to 20 mA 100 m; Shielded, twisted wire pair 10 bit Yes 625 μs PROFINET
Number of analog outputs Integrated channels (AO) Cable length Cable length, shielded, max. Analog value creation Integration and conversion time/resolution per channel Resolution with overrange (bit including sign), max. Integration time, parameterizable Conversion time (per channel) Encoder Connectable encoders 2-wire sensor 1. Interface Interface type Physics	2; 0 to 20 mA 100 m; Shielded, twisted wire pair 10 bit Yes 625 μs PROFINET Ethernet, 2-port switch, 2*RJ45
Number of analog outputs Integrated channels (AO) Cable length Cable length, shielded, max. Analog value creation Integration and conversion time/resolution per channel Resolution with overrange (bit including sign), max. Integration time, parameterizable Conversion time (per channel) Encoder Connectable encoders 2-wire sensor 1. Interface Interface type Physics Isolated	2; 0 to 20 mA 100 m; Shielded, twisted wire pair 10 bit Yes 625 μs PROFINET Ethernet, 2-port switch, 2*RJ45 Yes

PROFINET IO Device PROFINET IO Controller Prioritized startup supported Number of IO Devices, max. Prioritized startup supported Number of IO Devices, max. Prioritized startup supported Number of IO Devices, max. Prioritized startup supported Prioritized Startup Sta	Functionality	
PROFINET IO Controller Prioritized startup supported — Number of Io Devices, max. 16 Communication functions 7 communication functions 7 communication System of Communication Pyes As client Pyes As client Pyes Poper in Communication Pyes Poper in Communication Pyes Poper in Communication Pyes Poper in Communication Pyes Test commissioning functions Status/control variable Pyes Porcing Porcing Porcing Porcing Pyes Number of configurable Traces Pyes Pounder frequency (counter) max. Pyes Picquency meter Pyes Picquency meter Pyes Picquency meter Pyes Picquency (counter) max. Pyes Picquency meter Pyes Picquency meter Pyes Picquency founder Pyes Picquency (counter) max. Pyes Picquency founder Pyes	PROFINET IO Device	Yes
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Limit frequency (pulse) Galvanic isolation Galvanic isolation digital inputs		
Galvanic isolation Galvanic isolation digital inputs		
Galvanic isolation digital inputs	Limit frequency (pulse)	100 kHz
	Galvanic isolation	
Galvanic isolation digital inputs 500V AC for 1 minute		
	Galvanic isolation digital inputs	500V AC for 1 minute

between the channels, in groups of	1
Galvanic isolation digital outputs	
 Galvanic isolation digital outputs 	500V AC for 1 minute
 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 electric	city
Interference immunity against discharge of	Yes
static electricity acc. to IEC 61000-4-2	
 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 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 hig	h-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	
Degree of protection to EN 60529	
● IP20	Yes
Standards, approvals, certificates	
CE mark	Yes
UL approval	Yes
cULus	Yes
RCM (formerly C-TICK)	Yes
FM approval	Yes
Marine approval	
Marine approval	Yes
Ambient conditions	
Free fall	
Drop height, max. (in packaging)	0.3 m; five times, in dispatch package
Ambient temperature in operation	

 during operating phase, minimum 	-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.	1 080 hPa
Storage/transport, min.	660 hPa
Storage/transport, max.	1 080 hPa
Permissible operating height	-1000 to 2000 m
Relative humidity	
Operation, max.	95 %; no condensation
Permissible range (without condensation) at 25	95 %
°C	
Vibrations	
Vibrations	2G wall mounting, 1G DIN rail
 Operation, checked according to IEC 60068-2- 	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
Pollutant concentrations	
— SO2 at RH < 60% without condensation	S02: < 0.5 ppm; H2S: < 0.1 ppm; RH < 60% condensation-free
programming	
Programming language	
— LAD	Yes
— FBD	Yes
— SCL	Yes
Cycle time monitoring	
• can be set	Yes
Di	
Dimensions Width	130 mm
	130 mm 100 mm
Height	75 mm
Depth	73 111111
Weights	
Weight, approx.	520 g
last modified:	05.02.2015