SIEMENS

Data sheet

6ES7215-1HG40-0XB0



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

General information	
Engineering with	
 Programming package 	STEP 7 V13 SP1 or higher
Display	
with display	No
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
Current consumption, max.	1 500 mA
Inrush current, max.	12 A; at 28.8 V DC
Encoder supply	
24 V encoder supply	
• 24 V	L+ minus 4 V DC min.
Power losses	
Power loss, typ.	12 W

Type of memory EEPROM Work memory Integrated Integrated Integrated Respirate No Load memory Integrated Progent Progent Ves; maintenance-free without battery Yes OP Disponsing times for bit operations, typ. O ADS jus; / instruction for word operations, typ. I. 7 µs; / instruction for word operations, typ. I. 7 µs; / instruction OP Uptocessing times Or word operations, typ. I. 7 µs; / instruction for word operations, typ. I. 7 µs; / instruction OP discloses D Bs, FCs, FBs, counters and timers. The maximum number of addressable blocks ranges from 1 to 6533. 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. Fig Number of modules per system, max. B kbyte: Si	Memory	
• Integrated 125 kbyte • expandable No Load memory 4 Mbyte • Integrated 4 Mbyte • Plug-in (SIMATIC Memory Card), max. with SIMATIC memory card Backup • present • present Yes; maintenance-free • without battery Yes CPU processing times 0.085 µs; / instruction for bit operations, typ. 0.085 µs; / instruction for word operations, typ. 0.085 µs; / instruction for word operations, typ. 0.17 µs; / instruction for dioperations, typ. 0.285 µs; / instruction for word operations, typ. 0.285 µs; / instruction for word operations, typ. 1.7 µs; / instruction for floating point arithmetic, typ. 2.5 µs; / instruction for word operations, typ. 1.7 µs; / instruction Number of blocks (total) DBs, FCs, FBs, counters and timers. The maximum number of addressable blocks ranges from 1 to 6552. There is no restriction, the entire working memory can be used OB • Number, max. retentive data area in total (not. times, counters, flags), max. 10 kbyte Flag • Number, max. 8 kbyte; Size of bit memory address area		EEPROM
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Present Yes; maintenance-free without battery Yes CPU processing times for bit operations, typ. for bit operations, typ. 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 in total (incl. times, counters, flags), max. Flag Number, max. B kbyte; Size of bit memory address area Process image Inputs, adjustable 1 kbyte Hardware configuration Number of modules per system, max. 3 comm. modules, 1 signal board, 8 signal modules Time of ay Clock Hardware clock (real-time clock) Yes +c 60 s/month at 25 °C 480 h; Typical Digital inputs of which, inputs usable for technological 5; HSC (High Speed Counting)	 Plug-in (SIMATIC Memory Card), max. 	with SIMATIC memory card
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Digital inputs Number of digital inputs • of which, inputs usable for technological 6; HSC (High Speed Counting)	• Deviation per day, max.	+/- 60 s/month at 25 °C
Number of digital inputs 14; Integrated • of which, inputs usable for technological 6; HSC (High Speed Counting)	Backup time	480 h; Typical
Number of digital inputs 14; Integrated • of which, inputs usable for technological 6; HSC (High Speed Counting)	Digital inputs	
• of which, inputs usable for technological 6; HSC (High Speed Counting)		14; Integrated
		-

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	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 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	
• 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
integrated channels (DO)	10
short-circuit protection	No; to be provided externally
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, integrated 	10
 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
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	
• shielded, max.	100 m; twisted and shielded
Analog outputs	
Number of analog outputs	2
Integrated channels (AO)	2; 0 to 20 mA
Output ranges, current	
• 0 to 20 mA	Yes
Cable length	
• shielded, max.	100 m; shielded, twisted pair
Analog value creation	
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
Encoder	
Connectable encoders	
• 2-wire sensor	Yes
1st interface	
Interface type	PROFINET
Physics	Ethernet
Isolated	Yes
Automatic detection of transmission speed	Yes
Autonegotiation	Yes
Autocrossing	Yes
Functionality	
PROFINET IO Device	Yes
PROFINET IO Controller	Yes
PROFINET IO Controller	
Transmission rate, max.	100 Mbit/s

 Number of connectable IO devices, max. 	16
 Number of connectable to devices, max. Prioritized startup 	
·	16
- Number of IO Devices, max. PROFINET IO Device	10
Services	
— Shared device	Yes
	2
 — Number of IO controllers with shared device, max. 	2
Communication functions	
S7 communication	
supported	Yes
• as server	Yes
• As client	Yes
Open IE communication	
• TCP/IP	Yes
 ISO-on-TCP (RFC1006) 	Yes
• UDP	Yes
Web server	
• supported	Yes
 User-defined websites 	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
Traces	
 Number of configurable Traces 	2; Up to 512 KB of data per trace are possible
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
Galvanic isolation	

Galvanic isolation digital inputs	
Galvanic isolation digital inputs	500V AC for 1 minute
 between the channels, in groups of 	1
Galvanic isolation digital outputs	
Galvanic isolation digital outputs	Relays
	No
between the channels	2
 between the channels, in groups of 	2
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 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 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	
• Min.	-20 °C
• max.	60 °C; Number of simultaneously activated inputs or outputs 7 or 5 (no adjacent points) at 60 °C horizontal or 50 °C vertical, 14 or 10 at 55 °C horizontal or 45 °C vertical
 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 acc. to IEC 60068-2-13	
 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 °C 	95 %
Vibrations	
Vibrations	2G wall mounting, 1G DIN rail
 Operation, checked according to IEC 60068-2- 6 	Yes
-	
Shock test	
	Yes; IEC 68, Part 2-27 half-sine: strength of the shock 15 g (peak value), duration 11 ms
Shock test	
 Shock test checked according to IEC 60068-2-27 	
Shock test checked according to IEC 60068-2-27 Pollutant concentrations	value), duration 11 ms
Shock test • checked according to IEC 60068-2-27 Pollutant concentrations — SO2 at RH < 60% without condensation	value), duration 11 ms
Shock test • checked according to IEC 60068-2-27 Pollutant concentrations — SO2 at RH < 60% without condensation programming	value), duration 11 ms
Shock test • checked according to IEC 60068-2-27 Pollutant concentrations — SO2 at RH < 60% without condensation	value), duration 11 ms S02: < 0.5 ppm; H2S: < 0.1 ppm; RH < 60% condensation-free
Shock test • checked according to IEC 60068-2-27 Pollutant concentrations — SO2 at RH < 60% without condensation	value), duration 11 ms S02: < 0.5 ppm; H2S: < 0.1 ppm; RH < 60% condensation-free Yes
Shock test • checked according to IEC 60068-2-27 Pollutant concentrations — SO2 at RH < 60% without condensation	value), duration 11 ms S02: < 0.5 ppm; H2S: < 0.1 ppm; RH < 60% condensation-free Yes Yes
Shock test • checked according to IEC 60068-2-27 Pollutant concentrations — SO2 at RH < 60% without condensation	value), duration 11 ms S02: < 0.5 ppm; H2S: < 0.1 ppm; RH < 60% condensation-free Yes Yes
Shock test • checked according to IEC 60068-2-27 Pollutant concentrations — SO2 at RH < 60% without condensation	<pre>value), duration 11 ms S02: < 0.5 ppm; H2S: < 0.1 ppm; RH < 60% condensation-free Yes Yes Yes Yes</pre>
Shock test • checked according to IEC 60068-2-27 Pollutant concentrations — SO2 at RH < 60% without condensation	<pre>value), duration 11 ms S02: < 0.5 ppm; H2S: < 0.1 ppm; RH < 60% condensation-free Yes Yes Yes Yes 130 mm</pre>
Shock test • checked according to IEC 60068-2-27 Pollutant concentrations — SO2 at RH < 60% without condensation	<pre>value), duration 11 ms S02: < 0.5 ppm; H2S: < 0.1 ppm; RH < 60% condensation-free Yes Yes Yes Yes</pre>

Weights	
Weight, approx.	585 g
last modified:	12.03.2015

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