Data sheet

6ES7215-1BG40-0XB0



SIMATIC S7-1200, CPU 1215C, 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 at 47-63 Hz, program/data memory 200 KB

General information	
Product type designation	CPU 1215C AC/DC/relay
Firmware version	V4.6
Engineering with	
 Programming package 	STEP 7 V18 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
l²t	0.8 A ² ·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	200 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
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)
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	Single phase: 3 @ 100 kHz & 3 @ 30 kHz, differential: 3 @ 80 kHz & 3 @ 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	40
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
	2
Input ranges	V
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
	Yes
Autonegotiation	
Autocrossing	Yes
Interface types	v.
• 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
— PROFlenergy	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, max. - Number of connectable IO Devices for RT, max.	16
— of which in line, max.	16
— Of Which in line, max. — 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
DDOEINET IO Davice	of configured user data.
PROFINET IO Device	
Services	W 710
— PG/OP communication	Yes; encryption with TLS V1.3 pre-selected
 Isochronous mode 	No

— IRT	No
— IRT — PROFlenergy	Yes
— PROPIETIETY — Shared device	Yes
	2
Number of IO Controllers with shared device, max. Protocols	2
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)	1 es, OW 1243-2 required
• 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
Open IE communication	. 55, 55 mm - rodandanoj managor anaron mm - olione
• 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	1 112 5310
• 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, 	2 000
max.	
Further protocols	Ver
MODBUS	Yes
communication functions / header	
S7 communication	V
• supported	Yes
as server	Yes
as client	Yes
User data per job, max.	See online help (S7 communication, user data size)
Number of connections	DO Connectional Assessment / As
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 / 64 max
Test commissioning functions	
Status/control	
Status/control variable	Yes
• Variables	Inputs/outputs, memory bits, DBs, distributed I/Os, timers, counters
Forcing	

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Number of configuration Traces 2		Yes
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Diagnostics indication LED		512 kbyte
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FRROR LED		v
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acc. to IEC 61000-4-6 Emission of radio interference acc. to EN 55 011 • Limit class A, for use in industrial areas • Limit class B, for use in residential areas Pegree and class of protection IP degree of protection IP20 Standards, approvals, certificates CE mark UL approval CULus Yes FM approval Yes RCM (formerly C-TICK) Yes Marine approval Yes Ambient conditions Free fall Fall height, max. Ambient temperature during operation Yes; Group 1 Yes; When appropriate measures are used to ensure compliance with the limits for Class B according to EN 55011 Yes; When appropriate measures are used to ensure compliance with the limits for Class B according to EN 55011 Yes; When appropriate measures are used to ensure compliance with the limits for Class B according to EN 55011 Yes Yes Ves UL approval Yes FM approval Yes Arbient temperature during operation		
Limit class A, for use in industrial areas Limit class B, for use in residential areas Ves; Group 1 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 UL approval Yes UL us FM approval Yes FM approval Yes RCM (formerly C-TICK) Yes KC approval Arbient conditions Free fall Fall height, max. O.3 m; five times, in product package Ambient temperature during operation		
● 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 UL approval Yes CULus FM approval Yes RCM (formerly C-TICK) Yes KC approval Arbient conditions Free fall ● Fall height, max. O.3 m; five times, in product package	Emission of radio interference acc. to EN 55 011	
for Class B according to EN 55011 Degree and class of protection IP degree of protection Standards, approvals, certificates CE mark UL approval cULus FM approval RCM (formerly C-TICK) KC approval Ambient conditions Free fall Fall height, max. O.3 m; five times, in product package Ambient temperature during operation	 Limit class A, for use in industrial areas 	Yes; Group 1
Degree and class of protection IP degree of protection Standards, approvals, certificates CE mark UL approval CULus FM approval FM approval FC approval Yes RCM (formerly C-TICK) KC approval Marine approval Ambient conditions Free fall Fall height, max. O.3 m; five times, in product package	 Limit class B, for use in residential areas 	
IP degree of protection Standards, approvals, certificates CE mark UL approval CULus FM approval FM approval FC (formerly C-TICK) KC approval Marine approval Ambient conditions Free fall Fall height, max. O.3 m; five times, in product package	Dogwoo and close of nysteetien	IOI Class B according to EIN 350TT
Standards, approvals, certificates CE mark UL approval Yes CULus FM approval RCM (formerly C-TICK) KC approval Marine approval Ambient conditions Free fall Fall height, max. O.3 m; five times, in product package		IDOO
CE mark UL approval Yes CULus Yes FM approval RCM (formerly C-TICK) Yes KC approval Yes Marine approval Ambient conditions Free fall Fall height, max. O.3 m; five times, in product package	<u> </u>	IP2U
UL approval CULus Yes FM approval Yes RCM (formerly C-TICK) Yes KC approval Yes Marine approval Yes Ambient conditions Free fall • Fall height, max. 0.3 m; five times, in product package		
cULus FM approval FM approval RCM (formerly C-TICK) Yes KC approval Yes Marine approval Ambient conditions Free fall Fall height, max. O.3 m; five times, in product package		
FM approval RCM (formerly C-TICK) Yes KC approval Yes Marine approval Ambient conditions Free fall Fall height, max. O.3 m; five times, in product package	· ·	
RCM (formerly C-TICK) Yes KC approval Yes Marine approval Ambient conditions Free fall • Fall height, max. O.3 m; five times, in product package Ambient temperature during operation		
KC approval Marine approval Ambient conditions Free fall • Fall height, max. Ambient temperature during operation Yes Yes O.3 m; five times, in product package	· ·	
Marine approval Ambient conditions Free fall • Fall height, max. Ambient temperature during operation Yes O.3 m; five times, in product package		
Ambient conditions Free fall • Fall height, max. Ambient temperature during operation 0.3 m; five times, in product package	· ·	
Free fall • Fall height, max. 0.3 m; five times, in product package Ambient temperature during operation		Yes
• Fall height, max. 0.3 m; five times, in product package Ambient temperature during operation		
Ambient temperature during operation		
		0.3 m; five times, in product package
• min20 °C		00.00
	• 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
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.	5 000 m; Restrictions for installation altitudes > 2 000 m, see manual
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 / header	
configuration / programming / header	
Programming language	
— LAD	Yes
— FBD	Yes
— SCL	
	Yes
Know-how protection	V.
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
•	100
 Protection level: Complete protection 	Yes
programming / cycle time monitoring / header	Yes
programming / cycle time monitoring / header ■ adjustable	
programming / cycle time monitoring / header • adjustable Dimensions	Yes
programming / cycle time monitoring / header	Yes Yes 130 mm
programming / cycle time monitoring / header • adjustable Dimensions Width Height	Yes Yes 130 mm 100 mm
programming / cycle time monitoring / header ■ adjustable Dimensions Width Height Depth	Yes Yes 130 mm
programming / cycle time monitoring / header • adjustable Dimensions Width Height	Yes Yes 130 mm 100 mm

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