SIEMENS

Data sheet

6ES7214-1BG40-0XB0



SIMATIC S7-1200, CPU 1214C, compact CPU, AC/DC/relay, onboard I/O: 14 DI 24 V DC; 10 DO relay 2 A; 2 AI 0-10 V DC, Power supply: AC 85-264 V AC at 47-63 Hz, Program/data memory 100 KB

General information	
Product type designation	CPU 1214C AC/DC/Relay
Firmware version	V4.4
Engineering with	
 Programming package 	STEP 7 V16 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)	264 V
Line frequency	
 permissible range, lower limit 	47 Hz
 permissible range, upper limit 	63 Hz
Input current	
Current consumption, max.	300 mA at 120 V AC; 150 mA at 240 V AC
Inrush current, max.	20 A; at 264 V
² t	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	100 kbyte
expandable	No
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 hit on austinus, trus	0.00 vos / instruction
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	DD 50 5D 4 40 40 40 40 40 40 40 40 40 40 40 40 4
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
Local data	
 per priority class, max. 	16 kbyte
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	
	Yes
Hardware clock (real-time) Packup time	
Backup time	480 h; Typical
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	0.2 ms, 0.4 ms, 0.8 ms, 1.6 ms, 3.2 ms, 6.4 ms and 12.8 ms, selectable
at 11011 to 11411 main	in groups of four
— at "0" to "1", min.	0.2 ms 12.8 ms
— at "0" to "1", max. for interrupt inputs	12.0 1/15
	Vos
— parameterizable	Yes
for technological functions	Cingle phage: 2 @ 400 kHz 9 2 @ 20 kHz 3'''
— 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. unshielded, max.	300 m; for technological functions: No
Digital outputs	,, ,, ,, ,, , , , , ,
	10: Palays
Number of digital outputs	10; Relays
Switching capacity of the outputs	2 A
with resistive load, max.	2 A
on lamp load, max. Output delay with resistive load.	30 W with DC, 200 W with AC
Output delay with resistive load	40
• "0" to "1", max.	10 ms; max.
"1" to "0", max.	10 ms; max.

Number of relay outputs Number of operating cycles, max. Cable length • shielded, max. • unshielded, max. • unshielded, max. Number of analog inputs • Ves Input ranges • Voltage • to the 10 to	Deleviente	
Number of operating cycles, max. ounshedded, max. Number of analog inputs outlarges outlarges outlarges votage votage votage outlarges outlarg	Relay outputs	10
Cable length		
* shielded, max.		mechanically 10 million, at rated load voltage 100 000
• unshielded, max. Analog inputs Ves Ves Ves	-	E00 m
Analog inputs Number of analog inputs • Voltage • Voltage • Voltages • Voltages • Oth +10 V — Input resistance (0 to 10 V) — Railog outputs Number of analog outputs — Integration and conversion time/resolution per channel — Resolution with overrange (bit including sign), max. — Integration and conversion time/resolution per channel — Resolution with overrange (bit including sign), max. — Integration and conversion time/resolution per channel — Resolution with overrange (bit including sign), max. — Integration and conversion time/resolution per channel — Resolution with overrange (bit including sign), max. — Integration and conversion time/resolution per channel — Resolution with overrange (bit including sign), max. — Integration and conversion time/resolution per channel — Resolution with overrange (bit including sign), max. — Integration and conversion time/resolution per channel — Resolution with overrange (bit including sign), max. — Integration and conversion time/resolution per channel — Resolution with overrange (bit including sign), max. — Integration and conversion per channel — Resolution with overrange (bit including sign), max. — Integration and conversion per channel — Resolution with overrange (bit including sign), max. — Integration and conversion per channel — Resolution with overrange (bit including sign), max. — Integration and conversion per channel — Resolution and shelded — Integration and conversion per channel — Resolution and shelded — Integration and conversion per channel — Integr		
Number of analog inputs Vestage Vestage Ves		130 III
Total tranges		
Per Voltage (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 O Analog value generation for the inputs Integration and conversion time/resolution per channel ● Resolution with overange (bit including sign), max. Integration time, parameterizable Yes ● Conversion time (per channel) 625 μs Encoder Connectable encoders ● 2-wire sensor Yes Interface type PROFINET Isolated Yes Autocrossing Yes Autocrossing Yes Autocrossing Yes Interface types ● R.4 45 (Ethernet) Yes Autocrossing Yes Interface dwitch No Protocols ● PROFINET IO Controller Yes ● SIMATIC communication Yes ● SIMATIC communication Yes ● SIMATIC communication Yes Media redundancy No PROFINET IO Controller ● PROFINET IO Communication ● PROFINET IO C		2
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• 0 to +10 V		Yes
Cable length		V
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max. — Number of connectable IO Devices, max. 16		
— Number of connectable IO Devices, max.		16
		16
— Number of connectable IO Devices for RT	Number of connectable IO Devices for RT,	16
max.		
— of which in line, max.	— of which in line, max.	16
— Activation/deactivation of IO Devices Yes	 Activation/deactivation of IO Devices 	Yes
— Number of IO Devices that can be	 Number of IO Devices that can be 	8

simultaneously activated/deactivated, max. - 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 of configured user data. PROFINET IO Device Services - PG/OP communication Yes - Isochronous mode No — IRT No - PROFlenergy Yes - Shared device Yes - Number of IO Controllers with shared device, 2 **Protocols** Supports protocol for PROFINET IO Yes **PROFIBUS** Yes; CM 1243-5 (master) or CM 1242-5 (slave) required AS-Interface Yes; CM 1243-2 required Protocols (Ethernet) • TCP/IP Yes DHCP No SNMP Yes DCP Yes • LLDP Yes Redundancy mode Media redundancy No - MRP - 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 OPC UA Server Yes; Data access (read, write, subscribe), runtime license required - Number of sessions, max. 5 1 000 - Number of accessible variables, max. - Number of subscriptions per session, max. 5 - Sampling interval, min. 100 ms 200 ms - Publishing interval, min. - Number of monitored items, max. 500 - Number of server interfaces, max. 2 Number of nodes for user-defined server 1 000 interfaces, max. Further protocols MODBUS Yes **Communication functions** S7 communication Yes supported • as server Yes

• as client

• User data per job, max.

See online help (S7 communication, user data size)

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
 Memory size per trace, max. 	512 kbyte
nterrupts/diagnostics/status information	
Diagnostics indication LED	
RUN/STOP LED	Yes
• ERROR LED	Yes
MAINT LED	Yes
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 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	500V AC for 1 minute
between the channels, in groups of	1
Potential separation digital outputs	
Potential separation digital outputs Potential separation digital outputs	Relays
between the channels	No
 between the channels, in groups of 	2
	2
EMC	
Interference immunity against discharge of static electricity	V.
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	ce 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	
	IDOO
IP degree of protection	IP20

CE mark	Yes
	Yes
UL approval cULus	Yes
FM approval	Yes Yes
KC approval	Yes
Marine approval	165
Ambient conditions	
Free fall	
• Fall height, max.	0.3 m
Ambient temperature during operation	20.90
min. max.	-20 °C 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. 	2 000 m
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
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 level: Write protection	Yes
 Protection level: Read/write protection 	Yes
Protection level: Complete protection	Yes
Cycle time monitoring	
adjustable	Yes
Dimensions	
Width	110 mm
Height	100 mm
Depth	75 mm
Weights	
Weight, approx.	455 g
ννσιgπ, αμριολ.	700 y

last modified: 12/16/2020 🖸