SIEMENS

Data sheet

6ES7214-1HG40-0XB0



SIMATIC S7-1200, CPU 1214C, compact CPU, DC/DC/relay, onboard I/O: 14 DI 24 V DC; 10 DO relay 2 A; 2 AI 0-10 V DC, Power supply: DC 20.4-28.8V DC, Program/data memory 100 KB

General information	
Product type designation	CPU 1214C DC/DC/relay
Firmware version	V4.4
Engineering with	
 Programming package 	STEP 7 V16 or higher
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
Reverse polarity protection	Yes
Load voltage L+	
 Rated value (DC) 	24 V
 permissible range, lower limit (DC) 	20.4 V
permissible range, upper limit (DC)	28.8 V
Input current	
Current consumption (rated value)	500 mA; CPU only
Current consumption, max.	1 500 mA; CPU with all expansion modules
Inrush current, max.	12 A; at 28.8 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	L+ minus 4 V DC min.
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 	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	2.0 pc, 7 mondonom
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	onaio noming moment our so dood
Number, max.	Limited only by RAM for code
Data areas and their retentivity	
Retentive data area (incl. timers, counters, flags), max.	10 kbyte
Flag	10 hbyto
Number, max.	8 kbyte; Size of bit memory address area
Local data	o Rayte, oize of bit memory address area
• 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	100 Silloliti at 25 C
	4.4. Interveted
Number of digital inputs	14; Integrated
of which inputs usable for technological functions Course/sink input	6; HSC (High Speed Counting)
Source/sink input Number of simultaneously controllable inputs	Yes
all mounting positions	
— up to 40 °C, max.	14
Input voltage	14
· · · · · · · · · · · · · · · · · · ·	24 V
Rated value (DC) for signal "0"	
for signal "0"for signal "1"	5 V DC at 1 mA 15 V DC at 2.5 mA
Input delay (for rated value of input voltage)	15 V DC at 2:5 IIIA
for standard inputs	0.2 ms 0.4 ms 0.8 ms 1.6 ms 3.2 ms 6.4 ms and 12.9 ms colorately
— parameterizable	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 0.2 ms
— at "0" to "1", min. — at "0" to "1", max.	12.8 ms
·	12.0 1113
for interrupt inputs — parameterizable	Yes
— parameterizable for technological functions	100
-	Single phase: 3 @ 100 kHz & 3 @ 30 kHz, differential: 3 @ 80 kHz & 3
— parameterizable	@ 30 kHz
Cable length	FOO my FO my faculty along 15 15 15
• 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	30 W WILL DC, 200 W WILL AC
• "0" to "1", max.	10 ms; max.
• "1" to "0", max.	10 ms; max.
Relay outputs	10 IIIS, IIIAA.
	10
Number of operating evoles, max.	
Number of operating cycles, max. Cable length	mechanically 10 million, at rated load voltage 100 000
-	500 m
• shielded, max.	150 m
unshielded, max.	150 III
Analog inputs	
Number of analog inputs	2
Input ranges	V
Voltage	Yes
Input ranges (rated values), voltages	V
• 0 to +10 V	Yes
— Input resistance (0 to 10 V)	≥100k ohms
Cable length	400 my history and abigulary
• shielded, max.	100 m; twisted and shielded
Analog outputs	
Number of analog outputs	0
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	
Isolated	Yes
automatic detection of transmission rate	Yes
Autonegotiation	Yes
Autocrossing	Yes
Interface types	
RJ 45 (Ethernet)	Yes
Number of ports	1
• integrated switch	No
Protocols	
PROFINET IO Controller	Yes
PROFINET IO Device	Yes
SIMATIC communication	Yes
Open IE communication	Yes; Optionally also encrypted
Web server	Yes
Media redundancy	No
PROFINET IO Controller	
Transmission rate, max.	100 Mbit/s
Services	
— PG/OP communication	Yes
— Isochronous mode	No
— IRT	No
— PROFlenergy	No
Prioritized startup	Yes
— Prioritized startup — Number of IO devices with prioritized startup,	16
— Number of 10 devices with prioritized startup, max.	10
Number of connectable IO Devices, max.	16
Number of connectable IO Devices for RT,	16
max.	

Activistion/deactivation of IO Devices Number of IO Devices that can be simultaneously activated/deachvited, max. Updaing time PROFINET IO Devices PGOP communication PROFINET IO Devices PGOP communication Isochronous mode	— of which in line, max.	16
Mumber of I/O Devices that can be simultaneously activated/deactivated, max Updating time	· · · · · · · · · · · · · · · · · · ·	
simultaneously activated/deactivated, max. — Updating time PROFINET IO Device Services — PG/OP communication — Isochronous mode — IRT — PROFinerry — Shared device — Number of IO Controllers with shared device, max. — Number of IO Controllers with shared device, max. — Number of IO Controllers with shared device, max. — Number of IO Controllers with shared device, max. — Number of IO Controllers with shared device, max. — Number of IO Controllers with shared device, max. — Number of IO Controllers with shared device, max. — Sampling Internation — IRT — No		
Updating time Updating time Communication component set for PROFINET IQ, on the number of IQ devices and the quantity of configured user data. PROFINET IO Device Services PGIOP communication Isochronous mode IRT PROFInerity Shared device Number of ID Controllers with shared device, max. Protocols Supports protocol for PROFINET IO PROFINET IO Yes Shared device Number of ID Controllers with shared device, max. Protocols Supports protocol for PROFINET IO Yes Shared device Yes, CM 1243-5 (master) or CM 1242-5 (slave) required Yes, CM 1243-2 required Yes, CM 1243-2 required Yes, CM 1243-2 required Yes SNMP Yes SNMP Yes SNMP Yes SNMP SNMP SNMP Yes LLDP SNMP LLDP SNMP NRP No MRPD No MRPD No MRPD No MRPD Data length, max Yes UDP Data length, max SP OPEN I SNMP Yes UDP Data length, max UDP Data length, max UDP Data length, max UDP User authentication Number of sessions, max Number of monitored items, max Number of rodes for user-defined server interfaces, max Number of monitored items, max Number of		8
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RPOFINET IO Device Services - PG/OP communication - Isocritorious mode - IRT - PROFlenergy - Shared device - Number of IO Controllers with shared device, max. Protocols Supports protocol for PROFINET IO - PROFIBUS - Yes, CM 1243-2 (master) or CM 1242-5 (slave) required - Yes, CM 1243-2 required - Ye	— Opdating time	
PG/OP communication		
PG/OP communication Isochronous mode Isochronous mode Isochronous mode Isochronous mode Isochronous mode PROFIenergy Shared device Number of IO Controllers with shared device, max. Number of IO Controllers with shared device, max. PROFIBUS Shared device Number of IO Controllers with shared device, max. Protocols Supports protocol for PROFINET IO PROFIBUS Yes Number of severy middle device, max Number of secsions, max Number of sessions, max Number of secsions, max Number of secsions, max Number of secsions, max Number of secsions, max Number of secsions use Number of secsions, max Number of secsions pax Number of monitored litems, max	PROFINET IO Device	
Isochronous mode	Services	
— RT No — PROFlenergy Yes — Number of IO Controllers with shared device, max 2 — Number of IO Controllers with shared device, max 2 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) Protocols (Ethernet) • TCPIP Yes • DHCP No • SNMP Yes • LLDP Yes Redundancy mode Media redundancy — MRP No — MRPD No SIMATIC communication Yes • TCPIP Yes — Data length, max 8 kbyte • LUDP Yes — Data length, max 8 kbyte • UDP Yes — Data length, max 1472 byte Web server 9 supported Yes • Supported Yes Data length, max Yes • POC UA Runtime license required Yes	— PG/OP communication	Yes
- PROFlenergy - Shared device - Number of IO Controllers with shared device, max. Protocols Supports protocol for PROFINET IO PROFIBUS - Yes, CM 1243-5 (master) or CM 1242-5 (slave) required - Yes, CM 1243-2 required - Yes -	— Isochronous mode	No
Shared device Number of IO Controllers with shared device, max. Protocols Supports protocol for PROFINET IO PROFIBUS As Interface Yes; CM 1243-5 (master) or CM 1242-5 (slave) required Protocols (Ethernet) • TCPIIP • DHCP • No • SNMP • DCP • LLDP Redundancy mode Media redundancy MRPP MRP MRP MRPD No SIMATIC communication • S7 routing Yes Open IE communication • TCPIIP Data length, max. • ISO-on-TCP (IRFC1005) Data length, max. • UDP Data length, max. • UDP Data length, max. • UDP Data length, max. • UPP Data length, max. • UPP Data length max. • Ves Data length max. • UPP	— IRT	No
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Basic256Sha256 - User authentication "anonymous" or by user name & password - Number of sessions, max. 5 - Number of accessible variables, max. 1 000 - Number of subscriptions per session, max. 5 - Sampling interval, min. 100 ms - Publishing interval, min. 200 ms - Number of monitored items, max. 500 - Number of server interfaces, max. 2 - Number of nodes for user-defined server interfaces, max. 1 000 Further protocols		
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— Number of nodes for user-defined server interfaces, max. Further protocols		
interfaces, max. Further protocols		
Further protocols		1 000
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		Vas

Communication functions	
S7 communication	
supported	Yes
• as server	Yes
• as client	Yes
User data per job, max.	See online help (S7 communication, user data size)
Number of connections	
• overall	8 connections for open user communication (active or passive): TSEND_C, TRCV_C, TCON, TDISCON, TSEND and TRCV, 8 CPU/CPU connections (Client or Server) for GET/PUT data, 6 connections for dynamic assignment to GET/PUT or open user communication
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
Interrupts/diagnostics/status information	
Diagnostics indication LED	
RUN/STOP LED	Yes
• ERROR LED	Yes
MAINT LED	Yes
Integrated 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
	4
Number of alarm inputs	4
Potential separation	
Potential separation digital inputs	500V A O for 4
Potential separation digital inputs	500V AC for 1 minute
between the channels, in groups of	1
Potential separation digital outputs	D.I.
Potential separation digital outputs	Relays
between the channels	No
between the channels, in groups of	2
EMC	
Interference immunity against discharge of static electricity	
 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	Yes
 Interference immunity on supply lines acc. to IEC 61000-4-5 	Yes

Interference immunity against conducted variable disturba	ance induced by high-frequency fields
Interference immunity against high-frequency	Yes
radiation acc. to IEC 61000-4-6	
Emission of radio interference acc. to EN 55 011	V 0 4
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
tandards, approvals, certificates	
CE mark	Yes
UL approval	Yes
cULus	Yes
FM approval	Yes
RCM (formerly C-TICK)	Yes
KC approval	Yes
Marine approval	Yes
mbient conditions	
Free fall	
• Fall height, max.	0.3 m; five times, in product package
Ambient temperature during operation	20.90
• 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.	2 000 m
Relative humidity	05.0/
Operation, max.	95 %; no condensation
Vibrations	0 m /m/s2) well meanwhim = 4 = /m/s2) DIM =="
 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
onfiguration	
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.	435 g

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