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 20.4-28.8 V DC, program/data memory 150 KB



Figure similar

General information	
Product type designation	CPU 1214C DC/DC/relay
Firmware version	V4.7
Engineering with	
 Programming package 	STEP 7 V20 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
I²t	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	150 kbyte
Load memory	
• integrated	4 Mbyte
 Plug-in (SIMATIC Memory Card), max. 	with SIMATIC memory card
Backup	
• present	Yes
maintenance-free	Yes

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Output delay with resistive load	with resistive load, max.	2 A	
· ·	on lamp load, max.	30 W with DC, 200 W with AC	
• "0" to "1", max.	Output delay with resistive load		
10 110, 1100	• "0" to "1", max.	10 ms; max.	
• "1" to "0", max. 10 ms; max.	• "1" to "0", max.	10 ms; max.	

Relay outputs	
Number of relay outputs	10
Number of operating cycles, max.	mechanically 10 million, at rated load voltage 100 000
Cable length	moonamount to minion, act aloa load to lago 100 000
shielded, max.	500 m
unshielded, max. unshielded, max.	150 m
nalog inputs	100 111
Number of analog inputs	2
Input ranges	2
• Voltage	Yes
Input ranges (rated values), voltages	165
• 0 to +10 V	Yes
— Input resistance (0 to 10 V)	≥100k ohms
Cable length	2 TOOK OHING
• shielded, max.	100 m; twisted and shielded
nalog outputs	100 III, twisted and silicided
Number of analog outputs	0
<u> </u>	0
nalog value generation for the inputs	
Integration and conversion time/resolution per channel	10 hit
Resolution with overrange (bit including sign), max.	10 bit
Integration time, parameterizable Conversion time (per change))	Yes
Conversion time (per channel)	625 μs
ncoder	
Connectable encoders	
2-wire sensor	Yes
Interface	
Interface type	PROFINET
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	400.00
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 for RT, max.	16
— of which in line, max.	16
 Activation/deactivation of IO Devices 	Yes
 Number of IO Devices that can be simultaneously 	8
activated/deactivated, max. — Updating time	The minimum value of the update time also depends on the communication

Services	
	V
— PG/OP communication	Yes; encryption with TLS V1.3 pre-selected
— Isochronous mode	No
— IRT	No
— PROFlenergy	Yes
— Shared device	Yes
 Number of IO Controllers with shared device, max. 	2
Protocols	
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
	res, GM 1245-2 required
Protocols (Ethernet)	V
• TCP/IP	Yes
• DHCP	No
• SNMP	Yes
• DCP	Yes
• LLDP	Yes
Redundancy mode	
Media redundancy	
— MRP	No
— 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 	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
	1 000
Number of monitored items, recommended max.	
Number of server interfaces, max.	2
 Number of nodes for user-defined server interfaces, max. 	2 000
Further protocols	
MODBUS	Yes
communication functions / header	
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	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 / 68 max
Test commissioning functions	, 10 max, Total Collifications. Of 16361700 Float
Status/control	
Status/control variable	Yes
Variables	Inputs/outputs, memory bits, DBs, distributed I/Os, timers, counters
Forcing	inpates outputes, memory ones, poos, distributed 11-05, titricits, counters
• 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	
Counter	
Number of counters	6
Counting frequency, 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 	500 V AC for 1 minute
between the channels, in groups of	1
Potential separation digital outputs	
 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 all discharge Test voltage at contact discharge	6 kV
Interference immunity to cable-borne interference	
Interference immunity on supply lines acc. to IEC 61000-	Yes
4-4	
• Interference immunity on signal cables acc. to IEC 61000-	Yes
4-4	
Interference immunity against voltage surge	Von
 Interference immunity on supply lines acc. to IEC 61000- 4-5 	Yes
Interference immunity against conducted variable disturbance induc	ced by high-frequency fields
Interference immunity against high-frequency radiation	Yes
acc. to IEC 61000-4-6	
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	IOI Class D according to EIN 35011
	IDOA
IP degree of protection	IP20
Standards, approvals, certificates	Sigmana FooTook
Siemens Eco Profile (SEP)	Siemens EcoTech
CE mark	Yes
UL approval	Yes

	V
cULus	Yes
FM approval	Yes
RCM (formerly C-TICK)	Yes
KC approval	Yes
Marine approval	Yes
Ecological footprint	
 environmental product declaration 	Yes; type II acc. to ISO 14021
Global warming potential	
 global warming potential, (total) [CO2 eq] 	111 kg
— global warming potential, (during production) [CO2	20.1 kg
eq]	·
 global warming potential, (during operation) [CO2 	91.5 kg
eq]	
 global warming potential, (after end of life cycle) [CO2 eq] 	-0.9 kg
Ambient conditions	
Free fall	0.0 mg files tiles a line and the transfer and
• Fall height, max.	0.3 m; five times, in product package
Ambient temperature during operation	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	1 000 IIFa
<u> </u>	4 000
Installation altitude, min.	-1 000 m
Installation altitude, max.	5 000 m; Restrictions for installation altitudes > 2 000 m, see manual
Relative humidity	07.04
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 60069, 2, 6	Yes
Operation, tested according to IEC 60068-2-6 Shock testing	Yes
Shock testing	
	Yes; IEC 68, Part 2-27 half-sine: strength of the shock 15 g (peak value), duration 11 ms
Shock testing	Yes; IEC 68, Part 2-27 half-sine: strength of the shock 15 g (peak value),
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
Shock testing • tested according to IEC 60068-2-27 Pollutant concentrations • SO2 at RH < 60% without condensation	Yes; IEC 68, Part 2-27 half-sine: strength of the shock 15 g (peak value),
Shock testing • tested according to IEC 60068-2-27 Pollutant concentrations • SO2 at RH < 60% without condensation configuration / header	Yes; IEC 68, Part 2-27 half-sine: strength of the shock 15 g (peak value), duration 11 ms
Shock testing • tested according to IEC 60068-2-27 Pollutant concentrations • SO2 at RH < 60% without condensation configuration / header configuration / programming / header	Yes; IEC 68, Part 2-27 half-sine: strength of the shock 15 g (peak value), duration 11 ms
Shock testing • tested according to IEC 60068-2-27 Pollutant concentrations • SO2 at RH < 60% without condensation configuration / header configuration / programming / header Programming language	Yes; IEC 68, Part 2-27 half-sine: strength of the shock 15 g (peak value), duration 11 ms S02: < 0.5 ppm; H2S: < 0.1 ppm; RH < 60 % condensation-free
Shock testing • tested according to IEC 60068-2-27 Pollutant concentrations • SO2 at RH < 60% without condensation configuration / header configuration / programming / header Programming language — LAD	Yes; IEC 68, Part 2-27 half-sine: strength of the shock 15 g (peak value), duration 11 ms S02: < 0.5 ppm; H2S: < 0.1 ppm; RH < 60 % condensation-free
Shock testing • tested according to IEC 60068-2-27 Pollutant concentrations • SO2 at RH < 60% without condensation configuration / header configuration / programming / header Programming language — LAD — FBD	Yes; IEC 68, Part 2-27 half-sine: strength of the shock 15 g (peak value), duration 11 ms S02: < 0.5 ppm; H2S: < 0.1 ppm; RH < 60 % condensation-free Yes Yes
Shock testing • tested according to IEC 60068-2-27 Pollutant concentrations • SO2 at RH < 60% without condensation configuration / header configuration / programming / header Programming language — LAD — FBD — SCL	Yes; IEC 68, Part 2-27 half-sine: strength of the shock 15 g (peak value), duration 11 ms S02: < 0.5 ppm; H2S: < 0.1 ppm; RH < 60 % condensation-free
Shock testing • tested according to IEC 60068-2-27 Pollutant concentrations • SO2 at RH < 60% without condensation configuration / header configuration / programming / header Programming language — LAD — FBD — SCL Know-how protection	Yes; IEC 68, Part 2-27 half-sine: strength of the shock 15 g (peak value), duration 11 ms S02: < 0.5 ppm; H2S: < 0.1 ppm; RH < 60 % condensation-free Yes Yes Yes
Shock testing • tested according to IEC 60068-2-27 Pollutant concentrations • SO2 at RH < 60% without condensation configuration / header configuration / programming / header Programming language — LAD — FBD — SCL Know-how protection • User program protection/password protection	Yes; IEC 68, Part 2-27 half-sine: strength of the shock 15 g (peak value), duration 11 ms S02: < 0.5 ppm; H2S: < 0.1 ppm; RH < 60 % condensation-free Yes Yes Yes
Shock testing • tested according to IEC 60068-2-27 Pollutant concentrations • SO2 at RH < 60% without condensation configuration / header configuration / programming / header Programming language — LAD — FBD — SCL Know-how protection • User program protection/password protection • Copy protection	Yes; IEC 68, Part 2-27 half-sine: strength of the shock 15 g (peak value), duration 11 ms S02: < 0.5 ppm; H2S: < 0.1 ppm; RH < 60 % condensation-free Yes Yes Yes Yes
Shock testing • tested according to IEC 60068-2-27 Pollutant concentrations • SO2 at RH < 60% without condensation configuration / header configuration / programming / header Programming language — LAD — FBD — SCL Know-how protection • User program protection/password protection • Copy protection • Block protection	Yes; IEC 68, Part 2-27 half-sine: strength of the shock 15 g (peak value), duration 11 ms S02: < 0.5 ppm; H2S: < 0.1 ppm; RH < 60 % condensation-free Yes Yes Yes
Shock testing • tested according to IEC 60068-2-27 Pollutant concentrations • SO2 at RH < 60% without condensation configuration / header configuration / programming / header Programming language — LAD — FBD — SCL Know-how protection • User program protection/password protection • Copy protection • Block protection Access protection	Yes; IEC 68, Part 2-27 half-sine: strength of the shock 15 g (peak value), duration 11 ms S02: < 0.5 ppm; H2S: < 0.1 ppm; RH < 60 % condensation-free Yes Yes Yes Yes Yes Yes
Shock testing • tested according to IEC 60068-2-27 Pollutant concentrations • SO2 at RH < 60% without condensation configuration / header configuration / programming / header Programming language — LAD — FBD — SCL Know-how protection • User program protection/password protection • Copy protection • Block protection Access protection • protection of confidential configuration data	Yes; IEC 68, Part 2-27 half-sine: strength of the shock 15 g (peak value), duration 11 ms S02: < 0.5 ppm; H2S: < 0.1 ppm; RH < 60 % condensation-free Yes Yes Yes Yes Yes Yes
Shock testing • tested according to IEC 60068-2-27 Pollutant concentrations • SO2 at RH < 60% without condensation configuration / header configuration / programming / header Programming language — LAD — FBD — SCL Know-how protection • User program protection/password protection • Copy protection • Block protection Access protection	Yes; IEC 68, Part 2-27 half-sine: strength of the shock 15 g (peak value), duration 11 ms S02: < 0.5 ppm; H2S: < 0.1 ppm; RH < 60 % condensation-free Yes Yes Yes Yes Yes Yes

		Varaian	Classification
Classifications			
Weight, approx.	435 g		
Weights			
Depth	75 mm		
Height	100 mm		
Width	110 mm		
Dimensions			
 adjustable 	Yes		
programming / cycle time monitoring / header			
Number of roles	20		
 Number of groups 	14		
Number of users	42		
 User administration 	Yes; device-wide		
 Protection level: Complete protection 	Yes		

	Version	Classification
eClass	14	27-24-22-07
eClass	12	27-24-22-07
eClass	9.1	27-24-22-07
eClass	9	27-24-22-07
eClass	8	27-24-22-07
eClass	7.1	27-24-22-07
eClass	6	27-24-22-07
ETIM	10	EC000236
ETIM	9	EC000236
ETIM	8	EC000236
ETIM	7	EC000236
IDEA	4	3565
UNSPSC	15	32-15-17-05

Approvals / Certificates

General Product Approval

Miscellaneous Manufacturer Declara-

<u>tion</u>







Miscellaneous

General Product Approval

EMV

For use in hazardous locations

Metrological Approval

<u>KC</u>







<u>FM</u>

Maritime application







NK / Nippon Kaiji Kyokai





Maritime application

Environment

Industrial Communication

CCS (China Classification Society)









PROFINET

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