SIEMENS

Data sheet

6ES7214-1HH50-0XB0





SIMATIC S7-1200 G2: compact CPU 1214C DC/DC/RLY; power supply: DC 20.4-28.8 V DC; onboard I/O: 14x DI 24 V DC; 10 DO relay 2 A; memory: program 250 KB data: 750 KB, retentivity: 20 KB



Figure similar

General information		
Product type designation	CPU 1214C DC/DC/Relay	
Firmware version	V1.0	
FW update possible	Yes	
Product function		
 I&M data 	Yes; I&M0 to I&M3	
SysLog	Yes	
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	
Input current		
Current consumption (rated value)	245 mA; CPU only	
Current consumption, max.	1 100 mA; CPU with all expansion modules	
Inrush current, max.	12 A; at 28.8 V DC	
l²t	0.5 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	Yes; L+ minus 4 V DC min.	
Short-circuit protection	Yes	
 Output current, max. 	400 mA	
Power loss		
Power loss, typ.	3.5 W	
Memory		
Work memory		
• integrated	1 000 kbyte	
integrated (for program)	250 kbyte	
integrated (for data)	750 kbyte	
Load memory		
• integrated	8 Mbyte	

## Security Yes	 Plug-in (SIMATIC Memory Card), max. 	32 Gbyte; with SIMATIC memory card	
Protection		32 Gbyte, with SimATIC memory card	
maintenance-free Vis	·	Voc	
without battery OFU processing times For Rit operations, typ. For word operations, typ. For word operations, typ. For word operations, typ. For word operations, typ. For saling point admiredic, typ. For saling point admiredic saling to the saling t	·		
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Number of delay alarm OBs	•		
Number of protein interrupt OBs			
Number of process alarm OBs 50	•		
Number of DPV1 alarm OBs 1	•		
Number of isochronous mode OBs	•		
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0.8 / 1.6 / 3.2 / 6.4 / 10.0 / 12.8 / 20.0 ms — at "0" to "1", min. — at "0" to "1", max. 20 ms for interrupt inputs — parameterizable for technological functions	·	01/02/04/08/16/32/64/100/128/20049 0.05/01/02/04/	
 — at "0" to "1", max. for interrupt inputs — parameterizable for technological functions Yes	parameterizable		
 — at "0" to "1", max. for interrupt inputs — parameterizable for technological functions Yes	— at "0" to "1", min.	0.1 μs	
for interrupt inputs — parameterizable for technological functions Yes			
— parameterizable Yes for technological functions	·		
for technological functions	· · ·	Yes	
— parameterizable single phase: 6 HSCs @ 100 kHz & 2 standard @ 30 kHz, quadrature phase: 6	for technological functions		
	— parameterizable	single phase: 6 HSCs @ 100 kHz & 2 standard @ 30 kHz, quadrature phase: 6	

	HSCs @ 80 kHz & 2 standard @ 20 kHz	
Cable length	nous @ 80 kHz & 2 standard @ 20 kHz	
• 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.	
Switching frequency		
of the pulse outputs, with resistive load, max.	Not recommended	
Relay outputs		
Number of relay outputs	10	
Number of operating cycles, max.	mechanically 10 million, at rated load voltage 100 000	
Cable length	500	
shielded, max. unabiolded, max.	500 m	
unshielded, max. Analog inputs	150 m	
Analog inputs	0	
Number of analog inputs	0	
Analog outputs	0	
Number of analog outputs Encoder	0	
Connectable encoders	Von	
• 2-wire sensor 1. Interface	Yes	
	DDOEINET	
Interface type Isolated	PROFINET Yes	
automatic detection of transmission rate	Yes	
Autonegotiation	Yes	
Autorossing	Yes	
Interface types		
• RJ 45 (Ethernet)	Yes	
Number of ports	2	
integrated switch	Yes	
Protocols		
IP protocol	Yes; IPv4	
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	Yes	
— IRT	Yes	
— PROFlenergy	Yes; per user program	
 Prioritized startup 	Yes	
 Number of IO devices with prioritized startup, max. 	16	
 Number of connectable IO Devices, max. 	31	
— Of which IO devices with IRT, max.	31	
 Number of connectable IO Devices for RT, max. 	31	
— of which in line, max.	31	
 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 component set for PROFINET IO, on the number of IO devices and the quantity of configured user data.	
Update time for IRT		
— for send cycle of 1 ms	1 ms to 16 ms	
— for send cycle of 2 ms	2 ms to 32 ms	
— for send cycle of 4 ms	4 ms to 64 ms	
Update time for RT		
— for send cycle of 1 ms	1 ms to 512 ms	
— for send cycle of 2 ms	2 ms to 512 ms	
— for send cycle of 4 ms	4 ms to 512 ms	
PROFINET IO Device	(5 6 7 2 1110	
Services		
— PG/OP communication	Yes; encryption with TLS V1.3 pre-selected	
— Isochronous mode	No	
— IRT	Yes	
— PROFlenergy	Yes; per user program	
— Shared device	Yes	
Number of IO Controllers with shared device, max.	2	
Protocols		
Supports protocol for PROFINET IO	Yes	
PROFIsafe	No	
PROFIBUS	No	
OPC UA	No	
AS-Interface	No	
Protocols (Ethernet)		
• TCP/IP	Yes	
• DHCP	Yes	
• SNMP	Yes	
• DCP	Yes	
• LLDP	Yes	
Number of connections		
 Number of connections, max. 	128; via integrated interfaces of the CPU and connected CPs / CMs	
 Number of connections reserved for ES/HMI/web 	10	
Number of connections via integrated interfaces	88	
Redundancy mode		
Media redundancy		
— MRP	Yes; as MRP redundancy manager and/or MRP client	
— MRPD	Yes	
SIMATIC communication		
S7 routing	No	
 S7 communication, as server 	Yes	
S7 communication, as client	Yes	
Open IE communication		
• TCP/IP	Yes	
— Data length, max.	8 kbyte	
several passive connections per port, supported	Yes	
• ISO-on-TCP (RFC1006)	Yes	
— Data length, max.	8 kbyte	
• UDP	Yes	
— Data length, max.	2 kbyte; 1 472 bytes for UDP broadcast	
DHCP	Yes	
	Yes	
• DNS		
	Yes Yes	
• DNS		
DNS SNMP	Yes	
DNSSNMPDCP	Yes Yes	
DNSSNMPDCPLLDP	Yes Yes Yes	
DNSSNMPDCPLLDPEncryption	Yes Yes Yes	
 DNS SNMP DCP LLDP Encryption Web server	Yes Yes Yes Yes; Optional	
 DNS SNMP DCP LLDP Encryption Web server supported 	Yes Yes Yes Yes; Optional	

— Number of sessions, max.	30	
User-defined websites	Yes	
Further protocols		
• MODBUS	Yes	
communication functions / header		
S7 communication	v.	
• supported	Yes	
• as server	Yes	
• as client	Yes	
User data per job, max. Number of connections	See online help (S7 communication, user data size)	
overall	PG Connections: 4 reserved; HMI Connections: 4 reserved / 82 max; S7	
• Overall	Connections: 78 max; Open User Connections: 78 max; Web Connections: 2 reserved / 80 max; Total Connections: 10 reserved / 88 max	
S7 message functions		
Number of login stations for message functions, max.	32	
Program alarms	Yes	
Number of configurable program messages, max.	5 000	
Number of loadable program messages in RUN, max.	2 500	
Number of simultaneously active program alarms		
Number of program alarms	600	
Number of alarms for system diagnostics	100	
Number of alarms for motion technology objects	160	
Test commissioning functions		
Status/control	V	
Status/control variable Variable	Yes	
Variables Foreign	Inputs/outputs, memory bits, DBs, distributed I/Os, timers, counters	
Forcing	Voo	
Forcing Diagnostic buffer	Yes	
Diagnostic buffer	Yes	
• present Traces	165	
Number of configurable Traces	4	
Memory size per trace, max.	512 kbyte	
Interrupts/diagnostics/status information	, ., 	
Diagnostics indication LED		
RUN/STOP LED	Yes	
• ERROR LED	Yes	
• MAINT LED	Yes	
Supported technology objects		
Motion Control	Yes	
 Number of available Motion Control resources for technology objects 	800	
Required Motion Control resources		
required wildful Control resources - per speed-controlled axis	40	
per speed-controlled axis per positioning axis	80	
— per positioning axis — per synchronous axis	160	
— per synchronous axis — per external encoder	80	
— per external encoder — per output cam	20	
— per cam track	160	
— per probe	40	
 Number of available Extended Motion Control resources for technology objects 	40	
Required Extended Motion Control resources		
— per cam (1 000 points and 50 segments)	2; 1000 points and 1 segment	
— for each set of kinematics	30	
kinematics functions		
• Killematics functions		
kinematics with up to 4 interpolating axes	Yes	
	Yes No	
- kinematics with up to 4 interpolating axes		
kinematics with up to 4 interpolating axeskinematics with 5 or more interpolating axes	No	

Number of positioning axes at motion control cycle	10	
of 4 ms (typical value) — Number of positioning axes at motion control cycle	10	
of 8 ms (typical value)		
Integrated Functions		
Counter	Yes	
 Number of counters 	8	
Counting frequency, max.	100 kHz; Ia.0 to Ia.5: 100 kHz (80 kHz in quadrature mode), Ia.6 to Ib.5: 30 kHz (20 kHz in quadrature mode)	
Frequency measurement	Yes	
PID controller	Yes	
Number of pulse outputs	8; individually assigned to CPU and Signal Board	
Limit frequency (pulse)	100 kHz	
Potential separation		
Potential separation digital inputs		
 Potential separation digital inputs 	Yes; field side to logic: 707 V DC (type test)	
 between the channels 	No	
Number of potential groups	1	
Potential separation digital outputs		
 Potential separation digital outputs 	Relays	
 between the channels 	No	
 Number of potential groups 	1	
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 61000- 4-5 	Yes	
Interference immunity against conducted variable disturbance indu	ced 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		
IP degree of protection	IP20	
Standards, approvals, certificates		
Siemens Eco Profile (SEP)	Siemens EcoTech	
CE mark	Yes	
UL approval	Yes	
cULus	Yes	
FM approval	No	
RCM (formerly C-TICK)	Yes	
KC approval	No	
Marine approval	No	
Ecological footprint		
environmental product declaration	Yes; type 2 acc. to ISO 14021	
Global warming potential		
— global warming potential, (total) [CO2 eq]	68 kg	
— global warming potential, (during production) [CO2	14.4 kg	
eq] — global warming potential, (during operation) [CO2		
eq]	54.2 kg	
 global warming potential, (after end of life cycle) [CO2 eq] 	-0.723 kg	

product functions / security / header		
signed firmware update	Yes	
Secure Boot	Yes	
safely removing data	No	
Ambient conditions		
Free fall		
• Fall height, max.	0.3 m; five times, in product package	
Ambient temperature during operation		
• min.	-20 °C; No condensation	
• max.	40 °C; 40 °C horizontal or 30 °C vertical at max. voltages and max. specifications	
 horizontal installation, min. 	-20 °C; No condensation	
 horizontal installation, max. 	60 °C; at rated voltages, 50 % of max. specification and alternate IO active	
 vertical installation, min. 	-20 °C; No condensation	
 vertical installation, max. 	50 °C; at rated voltages, 50 % of max. specification and alternate IO active	
Ambient temperature during storage/transportation		
• min.	-40 °C	
• max.	70 °C	
Air pressure acc. to IEC 60068-2-13		
Operation, min.	540 hPa	
Operation, max.	1 140 hPa	
Storage/transport, min.	540 hPa	
Storage/transport, max.	1 140 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 	3.5 mm from 5 - 8.4 Hz, 1g from 8.4 - 150 Hz	
 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		
 User program protection/password protection 	Yes	
Access protection		
 protection of confidential configuration data 	Yes	
Protection level: Write protection	Yes	
 Protection level: Read/write protection 	Yes	
 Protection level: Complete protection 	Yes	
User administration	Yes; device-wide	
 Number of users 	100	
 Number of groups 	100	
Number of roles	50	
programming / cycle time monitoring / header		
adjustable	Yes	
Dimensions		
Width	80 mm	
Height	125 mm	
Depth	100 mm	
Weights		

Weight, approx. 376 g

Classifications

	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	9	EC000236
ETIM	8	EC000236
ETIM	7	EC000236
IDEA	4	3565
UNSPSC	15	32-15-17-05

Approvals / Certificates

General Product Approval





<u>KC</u>

Miscellaneous

Manufacturer Declaration



EMV For use in hazardous locations Test Certificates

<u>KC</u>







CCC-Ex

Type Test Certificates/Test Report

Environment

Industrial Communication







PROFINET

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