6AG1214-1HG40-5XB0

Data sheet



SIPLUS S7-1200 CPU 1214C DC/DC/relay based on 6ES7214-1HG40-0XB0 with conformal coating, -40...+60 $^{\circ}$ C, start up -25 $^{\circ}$ C, compact CPU, DC/DC/relay, onboard I/O: 14 DI 24 V DC; 10 DQ relay 2 A; 2 AI 0-10 V DC, power supply: AC 20.4-28.8 V DC, program/data memory 100 KB

Product type designation Firmware version V4.1 Engineering with • STEP 7 TIA Portal configurable/integrated from version Supply voltage Rated value (DC) • 24 V DC permissible range, lower limit (DC) • 28.8 V Load voltage L+ • Rated value (DC) • permissible range, lower limit (DC) permissible range, lower limit (DC) • permissible range, upper limit (DC) • permissible ran	General information	
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• STEP 7 TIA Portal configurable/integrated from version Supply voltage Rated value (DC) • 24 ∨ DC Yes permissible range, lower limit (DC) 20.4 ∨ permissible range, upper limit (DC) 28.8 ∨ Load voltage L* • Rated value (DC) • 24 ∨ V • permissible range, upper limit (DC) 28.8 ∨ Load voltage L* • Rated value (DC) • permissible range, lower limit (DC) 20.4 ∨ • permissible range, upper limit (DC) 20.4 ∨ • permissible range, lower limit (DC) 20.4 ∨ • permissible range, upper limit (DC) 20.4 ∨ • permissible range, lower limit (DC) 20.4 ∨ • permissible range, upper limit (DC) 20.4 ∨ • permissible rang	Firmware version	V4.1
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Current consumption (rated value) Current consumption, max. Inrush current, max. 12 A; at 28.8 V Output current for backplane bus (5 V DC), max. Inrush current for backplane bus (5 V DC), max. Inrush current for backplane bus (5 V DC), max. Inrush current Inrush current Inrush current Inrush current, max. Inrush current Inrush current, max. Inrush current, m	permissible range, upper limit (DC)	28.8 V
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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	Inrush current, max.	12 A; at 28.8 V
Encoder supply 24 V encoder supply 24 V	Output current	
24 V encoder supply	for backplane bus (5 V DC), max.	1 600 mA; Max. 5 V DC for SM and CM
L+ minus 4 V DC min. Power loss Power loss, typ. 12 W Memory Work memory integrated expandable No Load memory integrated Plug-in (SIMATIC Memory Card), max. Backup eypersent eypersent eyresent eyre	Encoder supply	
Power loss Power loss, typ. Memory Work memory integrated expandable No Load memory integrated Plug-in (SIMATIC Memory Card), max. Backup present present without battery CPU processing times for bit operations, typ. 12 W Memory 100 kbyte No Work No Wor	24 V encoder supply	
Power loss, typ. Memory Work memory integrated expandable Load memory integrated Plug-in (SIMATIC Memory Card), max. Backup epresent epresent ewithout battery Ves; maintenance-free ewithout battery For bit operations, typ. 12 W Memory 100 kbyte No No Load memory 4 Mbyte with SIMATIC memory card Yes; maintenance-free Yes CPU processing times for bit operations, typ. 0.085 µs; / instruction	• 24 V	L+ minus 4 V DC min.
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 integrated expandable No Load memory integrated Plug-in (SIMATIC Memory Card), max. Backup present with SIMATIC memory card Backup Operations times CPU processing times for bit operations, typ. 100 kbyte No Yes with SIMATIC memory card with SIMATIC memory card With SIMATIC memory card Operations times Operations times Operations times Operations times Operations times Operations times 	Memory	
 expandable Load memory integrated Plug-in (SIMATIC Memory Card), max. Backup present with SIMATIC memory card But the state of the state	Work memory	
Load memory	integrated	100 kbyte
 integrated Plug-in (SIMATIC Memory Card), max. Backup present with SIMATIC memory card Yes; maintenance-free without battery CPU processing times for bit operations, typ. 0.085 µs; / instruction 	expandable	No
 Plug-in (SIMATIC Memory Card), max. Backup present with SIMATIC memory card Yes; maintenance-free without battery CPU processing times for bit operations, typ. 0.085 µs; / instruction 	Load memory	
Backup		•
 present without battery CPU processing times for bit operations, typ. Yes; maintenance-free Yes O.085 µs; / instruction 		with SIMATIC memory card
without battery CPU processing times for bit operations, typ. 0.085 μs; / instruction	•	
CPU processing times for bit operations, typ. 0.085 µs; / instruction	•	
for bit operations, typ. 0.085 µs; / instruction		Yes
· · · · · · · · · · · · · · · · · · ·	CPU processing times	
for word operations, typ. 1.7 µs; / instruction		
	for word operations, typ.	1.7 μs; / instruction

for floating point grithmentic to a	2.2 us. / 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.	10 kbyte
Flag	···,··
• Size, max.	8 kbyte; Size of bit memory address area
Address area	,.,.
Process image	
Inputs, adjustable	1 kbyte
Outputs, adjustable	1 kbyte
	i 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	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
O-1-1- 1	@ 30 kHz
Cable length	FOO my FO we for took we lead to the state of
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	411
of the pulse outputs, with resistive load, max.	1 Hz
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
Input ranges	
• Voltage	Yes
Input ranges (rated values), voltages	163
• 0 to +10 V	Yes
— Input resistance (0 to 10 V)	≥100k ohms
Cable length	2 TOOK OTHING
shielded, max.	100 m; twisted and shielded
	100 III, 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
Analog value generation for the outputs	
Integration and conversion time/resolution per channel	
Resolution with overrange (bit including sign), max.	10 bit
Encoder	
Connectable encoders	
2-wire sensor	Yes
1. Interface	
	PROFINET
Interface type Isolated	Yes
automatic detection of transmission rate	Yes
Autonegotiation	Yes
Autocrossing	Yes
Interface types	103
RJ 45 (Ethernet)	Yes
Protocols	103
PROFINET IO Controller	Yes
PROFINET TO Controller PROFINET TO Device	Yes; Also simultaneously with IO-Device functionality
PROFINET IO Device PROFINET IO Controller	1 co, 7 1130 Simultaneously with 10-Device functionality
Transmission rate, max.	100 Mbit/s
Services	וועוועוויי
Number of connectable IO Devices, max.	16
PROFINET IO Device	
Services	
— Shared device	Yes
Number of IO Controllers with shared device,	2
max.	
Protocols	
Supports protocol for PROFINET IO	Yes
PROFIsafe	No
PROFIBUS	Yes; CM 1243-5 required
AS-Interface	Yes
Protocols (Ethernet)	100
• TCP/IP	Yes
Open IE communication	100
• TCP/IP	Yes
• ISO-on-TCP (RFC1006)	Yes
• UDP	Yes
Web server	
• supported	Yes
User-defined websites	Yes
Further protocols	
MODBUS	Yes
communication functions / header	
communication functions / fleatuer	
C7 communication	
S7 communication	Von
S7 communication • supported • as server	Yes Yes

• as client	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	Voo
• present Traces	Yes
Number of configurable Traces	2; Up to 512 KB of data per trace are possible
Integrated Functions	2, op to 0 12 112 of data por trace and possible
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 Petertial apparation digital autouts	1
Potential separation digital outputs • Potential separation digital outputs	Polove
between the channels	Relays No
between the channels, in groups of	2
EMC	
Interference immunity against discharge of static electricity	
Interference immunity against discharge of static	Yes
electricity acc. to IEC 61000-4-2	
 Test voltage at air discharge 	8 kV
Test voltage at contact discharge	6 kV
Interference immunity to cable-borne interference	Vaa
 Interference immunity on supply lines acc. to IEC 61000-4-4 	Yes
Interference immunity on signal cables acc. to IEC	Yes
61000-4-4	
Interference immunity against voltage surge	
 Interference immunity on supply lines acc. to IEC 61000-4-5 	Yes
Interference immunity against conducted variable disturbance	e induced by high-frequency fields
Interference immunity against conducted variable disturbance Interference immunity against high-frequency	Yes
radiation 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	and minito for Glass & according to Eta 550 FT
IP degree of protection	IP20
Ambient conditions	11 20
Free fall	
Fall height, max.	0.3 m; five times, in product package
Ambient temperature during operation	e.e, are times, in product publicage
• min.	-40 °C; = Tmin (incl. condensation/frost); start-up @ -25 °C
• max.	60 °C; = Tmax; Tmax > +55 °C number of simultaneously switched-on digital inputs 7, digital outputs 5, analog inputs 2 (no adjacent points) with horizontal mounting position
At cold restart, min.	-25 °C
Ambient temperature during storage/transportation	
● min.	-40 °C
• max.	70 °C
Altitude during operation relating to sea level	

 Installation altitude above sea level, max. 	2 000 m
Ambient air temperature-barometric pressure-	Tmin Tmax at 1 140 hPa 795 hPa (-1 000 m +2 000 m) // Tmin
altitude	(Tmax - 10 K) at 795 hPa 658 hPa (+2 000 m +3 500 m) // Tmin
	(Tmax - 20 K) at 658 hPa 540 hPa (+3 500 m +5 000 m); above 2 000 m max. 132 V AC
Relative humidity	2 000 III IIIAX. 132 V AC
With condensation, tested in accordance with IEC	100 %; RH incl. condensation/frost (no commissioning under
60068-2-38, max.	condensation conditions)
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
5 11	value), duration 11 ms
Resistance	
Coolants and lubricants — Resistant to commercially available coolants	Yes; Incl. diesel and oil droplets in the air
and lubricants	res, incl. diesei and oil diopiets in the all
Use in stationary industrial systems	
— to biologically active substances according to	Yes; Class 3B2 mold, fungus and dry rot spores (with the exception of
EN 60721-3-3	fauna); Class 3B3 on request
 to chemically active substances according to EN 60721-3-3 	Yes; Class 3C4 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *
to mechanically active substances according to	Yes; Class 3S4 incl. sand, dust, *
EN 60721-3-3	
Use on ships/at sea	
 to biologically active substances according to EN 60721-3-6 	Yes; Class 6B2 mold and fungal spores (excluding fauna); Class 6B3 on request
to chemically active substances according to	Yes; Class 6C3 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52
EN 60721-3-6	(severity degree 3); *
— to mechanically active substances according to	Yes; Class 6S3 incl. sand, dust; *
EN 60721-3-6	
Usage in industrial process technology — Against chemically active substances acc. to	Yes; Class 3 (excluding trichlorethylene)
EN 60654-4	res, class 3 (excluding the more thylene)
 Environmental conditions for process, 	Yes; Level GX group A/B (excluding trichlorethylene; harmful gas
measuring and control systems acc. to ANSI/ISA- 71.04	concentrations up to the limits of EN 60721-3-3 class 3C4 permissible); level LC3 (salt spray) and level LB3 (oil)
71.04 Remark	level LC3 (sait spray) and level LB3 (oil)
Note regarding classification of environmental	* The supplied plug covers must remain in place over the unused
conditions acc. to EN 60721, EN 60654-4 and	interfaces during operation!
ANSI/ISA-71.04	
Conformal coating Coatings for printed circuit board assemblies acc. to	Yes; Class 2 for high reliability
EN 61086	res, class 2 for riight reliability
 Protection against fouling acc. to EN 60664-3 	Yes; Type 1 protection
 Military testing according to MIL-I-46058C, 	Yes; Discoloration of coating possible during service life
Amendment 7	Vegy Conformal agating Class A
 Qualification and Performance of Electrical Insulating Compound for Printed Board Assemblies 	Yes; Conformal coating, Class A
according to IPC-CC-830A	
configuration / header	
configuration / programming / header	
Programming language	
— LAD	Yes
— FBD	Yes
— SCL	Yes
programming / cycle time monitoring / header • adjustable	Yes
Dimensions	
Width	110 mm
Height	100 mm
Depth	75 mm
Weights	
Weight, approx.	435 g
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