SIEMENS

Data sheet

6AG1212-1BE40-4XB0



Figure similar

SIPLUS S7-1200 CPU 1212C AC/DC/relay based on 6ES7212-1BE40-0XB0 with conformal coating, -20...+60 °C, compact CPU, AC/DC/relay, onboard I/O: 8 DI 24 V DC 6 DQ relay 2 A 2 AI 0-10 V DC, power supply: AC 85-264 V AC @ 47-63 Hz, program/data memory 75 KB

General information	
Product type designation	CPU 1212C AC/DC/relay
based on	6ES7212-1BE40-0XB0
Engineering with	
 STEP 7 TIA Portal configurable/integrated from version 	see entry ID: 109746275
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 (rated value)	80 mA at 120 V AC; 40 mA at 240 V AC
Current consumption, max.	240 mA at 120 V AC; 120 mA at 240 V AC
Inrush current, max.	20 A; at 264 V
Output current	
for backplane bus (5 V DC), max.	1 000 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.	11 W
Memory	
Work memory	
• integrated	75 kbyte
Load memory	
• integrated	1 Mbyte
 Plug-in (SIMATIC Memory Card), max. 	with SIMATIC memory card
Backup	
• present	Yes; maintenance-free
without battery	Yes
CPU processing times	
for bit operations, typ.	0.085 μs; / Operation
for word operations, typ.	1.7 µs; / Operation
for floating point arithmetic, typ.	2.3 µs; / Operation
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.	4 kbyte; Size of bit memory address area
Local data	
per priority class, max.	16 kbyte; Priority class 1 (program cycle): 16 KB, priority class 2 to 26: 6 KB
Address area	(preg.am.e),, and a control of the control of
Process image	
Inputs, adjustable	1 kbyte
Outputs, adjustable	1 kbyte
Hardware configuration	1 royte
	O server week less 4 signal beared 0 signal resolutes
Number of modules per system, max.	3 comm. modules, 1 signal board, 2 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	8; Integrated
 of which inputs usable for technological functions 	4; HSC (High Speed Counting)
Source/sink input	Yes
Number of simultaneously controllable inputs	
all mounting positions	
— up to 40 °C, max.	8
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 current	10 1 50 4.2.0 11.1
• for signal "1", typ.	1 mA
Input delay (for rated value of input voltage)	11101
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
— parameterizable	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	Yes; Single phase: 3 at 100 kHz & 3 at 30 kHz, differential: 3 at 80 kHz & 3 at
parameterizabio	30 kHz
Cable length	
shielded, max.	500 m; 50 m for technological functions
• unshielded, max.	300 m; for technological functions: No
Digital outputs	
Number of digital outputs	6; 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	55 T That 50, 200 T That 70
• "0" to "1", max.	10 ms: may
	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	
Number of relay outputs	6
Number of operating cycles, max.	mechanically 10 million, at rated load voltage 100 000

• Inhielded, max.	Cable length	
- unshielded, max. Number of analog inputs * Votage * Votage * Votage * Votage * Votage * Votage * Ote + 10 V - Input resistance (0 to 10 V) * Analog outputs Number of analog outputs Number of analog outputs * 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 (per channel) * Resolution with overrange (bit including sign), max. * Integration and conversion time (per channel) * Conversion time (per channel) * Conversion time (per channel) * PROFINET * Connectable encoders * Vetic sensor * Interface type * Vetic sensor * Interface bype * RIA 45 (Ehernet) * PROFINET to Converse * PROFINET to Device * Services - Number of connectable to Devices, max. * Transmission rate, max. * 10 Mobits * Services - Number of Controllers with shared device, max. * PROFINET to Device * Services - Number of Controllers with shared device, max. * PROFINET to Device * Services - Number of Controllers with shared device, max. * PROFINET to Device * Services - Number of Controllers with shared device, max. * PROFINET to Device * Services - Number of Controllers with shared device, max. * PROFINET to Device * Services - Number of Controllers with shared device, max. * PROFINET to Device * Services - Number of Controllers with shared device, max. * PROFINET to Device * Services - Number of Controllers with shared device, max. * PROFINET to Device * Services - Number of Controllers with shared device, max. * PROFINET to Device * Services - Number of C	Cable length	500 m
Number of analog inputs 2	,	
Number of analog inputs 2		150 111
Input ranges Ves V		2
Notinger Yes		2
Inpart ranges (rated values), voltages • 10 + 10 V		Van
• 10 to 10 V — Input resistance (0 to 10 V) Cable length • shelded, max. 100 m; twisted and shielded Analog outputs Number of analog outputs Number of analog outputs Namber of analog outputs Resolution with overange (bit including sign), max. 10 bit • Resolution with overange (bit including sign), max. 10 bit • Inlegration and conversion time/resolution per channel • Resolution with overange (bit including sign), max. 10 bit • Conversion time (per channel) 625 µs Encoder • Conversion time (per channel) 7 es • Zuite sensor Yes • Zuite sensor Yes Interface Interface type PROFINET Isolated Yes automatic detection of transmission rate Yes Autorospitation Yes Autorospitation Yes • R. 45 (Ethernet) Yes • R. 45 (Ethernet) Yes • PROFINET 10 Controller Yes • PROFINET 10 Controller Yes • Open IE communication Yes • PROFINET 10 Controller • Transmission rate, max. 100 Mbit/s Services — Number of Connectable IO Devices, max. 100 Mbit/s Services — Shared device Yes Supports protocol for PROFINET IO Yes PROFINET 10 Controllers with shared device, max. 2 PROFINET 10 Controllers with shared device, max. 3 PROFINET 10 Controllers with shared device, max. 4 PROFINET 10 Controllers with shared device, max. 5 PROFINET 10 Controllers with shared device, max. 100 Mbit/s PROFINET 10 Controllers with shared device, max. 100 Mbit/s PROFINET 10 Controllers with shared device, max. 100 Mbit/s PROFINET 10 Controllers with shared device, max. 100 Mbit/s PROFINET 10 Controllers with shared device, max. 100 Mbit/s PROFINET 10 Controllers		Yes
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Resolution with overrange (bit including sign), max. Integration time, parameterizable yes Conversion time (per channel) Sets µs Convertable encoders		
■ Integration time, parameterizable ■ Conversion time (per channel) ■ Conversion time (per channel) ■ Connectable encoders ■ 2-wire sensor ■ Yes ■ Interface Interface type Interface type Isolated Autonegotiation	·	40.1%
Encoder Connectable encoders • 2-wire sensor Yes 1. Interface Interface type PROFINET Isolated Yes automatic detection of transmission rate Yes Autorepositation Yes Autoressing Yes • RJ 45 (Ethernet) Yes • RJ 45 (Ethernet) Yes • PROFINET IO Controller Yes • PROFINET IO Device Yes • Veb server Yes PROFINET IO Controller Yes • Veb server Yes PROFINET IO Controller Yes • Transmission rate, max. 100 Mbit/s Services — Number of connectable IO Devices, max. 16 PROFINET IO Device Yes — Shared device Yes — Number of IO Controllers with shared device, max. 2 Protocols Yes Supports protocol for PROFINET IO Yes PROFIBUS Yes, CM 1243-5 required AS-Interface Yes PROFIBUS		
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Connectable encoders Yes		625 μs
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Interface types	Autonegotiation	Yes
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Protocols	• •	
		Yes
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		Yes
● ISO-on-TCP (RFC1006) ● UDP Yes Web server ● supported Yes	Open IE communication	
UDPYesWeb serversupportedYes	• TCP/IP	Yes
Web server ● supported Yes		Yes
• supported Yes	• UDP	Yes
	Web server	
• User-defined websites Yes	• supported	Yes
	User-defined websites	Yes
Further protocols	Further protocols	
• MODBUS Yes	• MODBUS	Yes
communication functions / header	communication functions / header	

O7iti	
S7 communication	V
• supported	Yes
• as server	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	
• present	Yes
Traces	
Number of configurable Traces	2; Up to 512 KB of data per trace are possible
Integrated Functions	
Counter	
 Number of counters 	4
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	500V 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 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
Ambient conditions	
Free fall	
• Fall height, max.	0.3 m; five times, in product package
Ambient temperature during operation	, , , , , , , ,
• min.	-20 °C; = Tmin; Startup @ 0 °C
	,,

• max.	60 °C; Number of simultaneously activated inputs or outputs 4 or 3 (no adjacent points) at 60 °C horizontal or 50 °C vertical, 8 or 6 at 55 °C horizontal or 45 °C vertical
 horizontal installation, min. 	-20 °C; = Tmin (incl. condensation/frost); start-up @ 0 °C
 horizontal installation, max. 	60 °C; = Tmax
vertical installation, min.	-20 °C; = Tmin
vertical installation, max.	50 °C; = Tmax
At cold restart, min.	0 °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-altitude	Tmin Tmax at 1 140 hPa 795 hPa (-1 000 m +2 000 m) // Tmin (Tmax
- 7 Ambient am temperature baremetre procedie antitude	- 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	
• With condensation, tested in accordance with IEC 60068-2-38, max.	100 %; RH incl. condensation/frost (no commissioning under 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 Shock testing	Yes
• 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
Resistance	
Coolants and lubricants	
Resistant to commercially available coolants and lubricants	Yes; Incl. diesel and oil droplets in the air
Use in stationary industrial systems	
 to biologically active substances according to EN 60721-3-3 	Yes; Class 3B2 mold, fungus and dry rot spores (with the exception of 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 EN 60721-3-3 	Yes; Class 3S4 incl. sand, dust, *
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 EN 60721-3-6 	Yes; Class 6C3 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *
 to mechanically active substances according to EN 60721-3-6 	Yes; Class 6S3 incl. sand, dust; *
Usage in industrial process technology	
 Against chemically active substances acc. to EN 60654-4 	Yes; Class 3 (excluding trichlorethylene)
 Environmental conditions for process, measuring and control systems acc. to ANSI/ISA-71.04 	Yes; Level GX group A/B (excluding trichlorethylene; harmful gas concentrations up to the limits of EN 60721-3-3 class 3C4 permissible); level LC3 (salt spray) and level LB3 (oil)
Remark	
 Note regarding classification of environmental conditions acc. to EN 60721, EN 60654-4 and ANSI/ISA-71.04 	* The supplied plug covers must remain in place over the unused interfaces during operation!
Conformal coating	
 Coatings for printed circuit board assemblies acc. to EN 61086 	Yes; Class 2 for high reliability
 Protection against fouling acc. to EN 60664-3 	Yes; Type 1 protection
Military testing according to MIL-I-46058C, Amendment 7	Yes; Discoloration of coating possible during service life
 Qualification and Performance of Electrical Insulating Compound for Printed Board Assemblies according to IPC- CC-830A 	Yes; Conformal coating, Class A
configuration / header	
configuration / programming / header	
Programming language	
— LAD	Yes
— FBD	Yes

— SCL	Yes
programming / cycle time monitoring / header	
• adjustable	Yes
Dimensions	
Width	90 mm
Height	100 mm
Depth	75 mm
Weights	
Weight, approx.	425 g

last modified: 5/29/2024 **C**