SIEMENS

Data sheet

6ES7217-1AG40-0XB0

Siemens EcoTech



SIMATIC S7-1200, CPU 1217C, compact CPU, DC/DC/DC, 2 PROFINET ports onboard I/O: 10 DI 24 V DC; 4 DI RS-422/485; 6 DO 24 V DC; 0.5 A; 4 DO RS-422/485; 2 AI 0-10 V DC, 2 AO 0-20 mA power supply: DC 20.4-28.8 V DC, program/data memory 250 KB



General information	
Product type designation	CPU 1217C DC/DC/DC
Firmware version	V4.6
Engineering with	
 Programming package 	STEP 7 V18 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)	600 mA; CPU only
Current consumption, max.	1 600 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	L+ minus 4 V DC min.
Power loss	
Power loss, typ.	12 W
Memory	
Work memory	
• integrated	250 kbyte
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; / 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.	14 kbyte
Flag	
• Size, max.	8 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	
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	
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 @ 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	10
of which high-speed outputs	4; 100 kHz Pulse Train Output
Limitation of inductive shutdown voltage to	L+ (-48 V)
Switching capacity of the outputs	
with resistive load, max.	0.5 A
● on lamp load, max.	5 W
Output voltage	
for signal "0", max.	0.1 V; with 10 kOhm load

e for signal "1" min	20 \
• for signal "1", min.	20 V
Output current	0.5.4
• for signal "1" rated value	0.5 A
• for signal "0" residual current, max.	0.1 mA
Output delay with resistive load	4
• "0" to "1", max.	1 μs
• "1" to "0", max.	5 μs
Switching frequency	
of the pulse outputs, with resistive load, max.	100 kHz
Relay outputs	
Number of relay outputs	0
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	
• 0 to +10 V	Yes
— Input resistance (0 to 10 V)	≥100k ohms
Cable length	
shielded, max.	100 m; twisted and shielded
Analog outputs	
Number of analog outputs	2
Output ranges, current	
• 0 to 20 mA	Yes
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	
Interface type	PROFINET
Isolated	Yes
automatic detection of transmission rate	Yes
Autonegotiation	Yes
Autocrossing	Yes
Autocrossing Interface types	Yes
Interface types	Yes Yes
Interface types • RJ 45 (Ethernet)	
Interface types RJ 45 (Ethernet) Number of ports	Yes
Interface types • RJ 45 (Ethernet)	Yes 2
Interface types • RJ 45 (Ethernet) • Number of ports • integrated switch	Yes 2
Interface types RJ 45 (Ethernet) Number of ports integrated switch Protocols	Yes 2 Yes
Interface types • RJ 45 (Ethernet) • Number of ports • integrated switch Protocols • PROFINET IO Controller	Yes 2 Yes Yes
Interface types • RJ 45 (Ethernet) • Number of ports • integrated switch Protocols • PROFINET IO Controller • PROFINET IO Device • SIMATIC communication	Yes 2 Yes Yes Yes Yes Yes
Interface types • RJ 45 (Ethernet) • Number of ports • integrated switch Protocols • PROFINET IO Controller • PROFINET IO Device • SIMATIC communication • Open IE communication	Yes 2 Yes Yes Yes Yes Yes Yes Yes Yes Yes; Optionally also encrypted
Interface types • RJ 45 (Ethernet) • Number of ports • integrated switch Protocols • PROFINET IO Controller • PROFINET IO Device • SIMATIC communication • Open IE communication • Web server	Yes 2 Yes
Interface types RJ 45 (Ethernet) Number of ports integrated switch Protocols PROFINET IO Controller PROFINET IO Device SIMATIC communication Open IE communication Web server Media redundancy	Yes 2 Yes Yes Yes Yes Yes Yes Yes Yes Yes; Optionally also encrypted
Interface types RJ 45 (Ethernet) Number of ports integrated switch Protocols PROFINET IO Controller PROFINET IO Device SIMATIC communication Open IE communication Web server Media redundancy PROFINET IO Controller	Yes 2 Yes Yes Yes Yes Yes Yes Yes Yes; Optionally also encrypted Yes Yes
Interface types • RJ 45 (Ethernet) • Number of ports • integrated switch Protocols • PROFINET IO Controller • PROFINET IO Device • SIMATIC communication • Open IE communication • Web server • Media redundancy PROFINET IO Controller • Transmission rate, max.	Yes 2 Yes
Interface types • RJ 45 (Ethernet) • Number of ports • integrated switch Protocols • PROFINET IO Controller • PROFINET IO Device • SIMATIC communication • Open IE communication • Web server • Media redundancy PROFINET IO Controller • Transmission rate, max. Services	Yes 2 Yes
Interface types • RJ 45 (Ethernet) • Number of ports • integrated switch Protocols • PROFINET IO Controller • PROFINET IO Device • SIMATIC communication • Open IE communication • Web server • Media redundancy PROFINET IO Controller • Transmission rate, max.	Yes 2 Yes Yes Yes Yes Yes Yes Yes Yes; Optionally also encrypted Yes Yes

— 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 activated/deactivated, max. 	8
— 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.
PROFINET IO Device	
Services	
— 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	-
	Yes
Supports protocol for PROFINET IO	
PROFISATE	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
Protocols (Ethernet)	
• TCP/IP	Yes
• DHCP	No
• SNMP	Yes
• DCP	Yes
• LLDP	Yes
Redundancy mode	
Media redundancy	
— MRP	Yes; as MRP redundancy manager and/or MRP client
— MRPD	No
SIMATIC communication	NO
	Yes
• S7 routing	res
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
	5
 Number of subscriptions per session, max. 	:1
Compling interval unin	
— Sampling interval, min.	100 ms
— Publishing interval, min.	100 ms 200 ms
— Publishing interval, min.— Number of server methods, max.	100 ms 200 ms 20
— Publishing interval, min.	100 ms 200 ms

Number of nodes for user-defined server interfaces.	2 000
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 / 64 max
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	
Counter	
 Number of counters 	6
Counting frequency, max.	1 MHz
Frequency measurement	Yes
controlled positioning	Yes
Number of position-controlled positioning axes, max.	8
Number of positioning axes via pulse-direction interface	4; With integrated outputs
PID controller	Yes
Number of alarm inputs	4
Number of pulse outputs	4
Limit frequency (pulse)	1 MHz
Potential separation	
Potential separation digital inputs	
 Potential separation digital inputs 	No
 between the channels, in groups of 	1
Potential separation digital outputs	
 Potential separation digital outputs 	Yes
 between the channels 	No
• between the channels, in groups of	1
EMC	
Interference immunity against discharge of static electricity	
 Interference immunity against discharge of static electricity acc. to IEC 61000-4-2 	Yes
,,	0.177
Test voltage at air discharge	8 kV
•	6 kV
— Test voltage at air discharge	
Test voltage at air discharge Test voltage at contact discharge	

IP degree of protection tandards, approvals, certificates CE mark Yes UL approval Yes CULus Yes RM approval Yes RCM (formerly C-TICK) Yes Marine approval Yes Marine approval Yes Ecological footprint • environmental product declaration Yes Global warming potential, (total) [CO2 eq] 143 kg		
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Interference immunity against high-frequency radiation act. bit EO 1004—49 Emission of radia interference act. bit N5 5011 Furnit class B, for use in indicating areas Limit class B, for use in indicating areas Limit class B, for use in indicating areas Limit class B, for use in indicating areas Yes, When appropriate measures are used to ensure compliance with the limits for Class B according to EN 55011 By degree of protection Yes Cultus Yes By degree of protection Py degree of		Yes
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segree and class of protection IP degree of protection IP degree of protection IP degree of protection CE mark Ut approval Out proval Out proval Out proval Out proval Out proval EM (a grow by Carlo C	Limit class A, for use in industrial areas	Yes; Group 1
Pegge of protection Page	• Limit class B, for use in residential areas	
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Marine approval	UL approval	Yes
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Marine approval Yes		
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 min. max. 70 °C Air pressure acc. to IEC 60068-2-13 Operation, min. Operation, max. Storage/transport, min. Storage/transport, max. 1 080 hPa Storage/transport, max. 1 080 hPa Storage/transport, max. Altitude during operation relating to sea level Installation altitude, min. Installation altitude, max. 5 000 m; Restrictions for installation altitudes > 2 000 m, see manual Relative humidity Operation, max. Vibrations Vibration resistance during operation acc. to IEC 60068-2-6 Operation, tested according to IEC 60068-2-6 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	•	
max. 70 °C Air pressure acc. to IEC 60068-2-13 Operation, min. 795 hPa Operation, max. 1080 hPa Storage/transport, min. 660 hPa Storage/transport, max. 1080 hPa Altitude during operation relating to sea level Installation altitude, min1000 m Installation altitude, max. 5000 m; Restrictions for installation altitudes > 2000 m, see manual Relative humidity Operation, max. 95 %; no condensation Vibrations Vibration resistance during operation acc. to IEC 60068-2-6 Operation, tested according to IEC 60068-2-6 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		-40 °C
Air pressure acc. to IEC 60068-2-13 Operation, min. Operation, max. 1080 hPa Storage/transport, min. Storage/transport, min. Storage/transport, max. 1080 hPa Storage/transport, max. 1080 hPa Installation altitude, min. Installation altitude, min. Installation altitude, max. Relative humidity Operation, max. 95 %; no condensation Vibrations Vibrations Vibration resistance during operation acc. to IEC 60068-2-6 Operation, tested according to IEC 60068-2-6 Yes Shock testing It condenses the shock 15 g (peak value), duration 11 ms Pollutant concentrations		
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 Storage/transport, min. Storage/transport, max. Altitude during operation relating to sea level Installation altitude, min. Installation altitude, max. Storage/transport, max. Installation altitude, min. Installation altitude, max. Storage/transport, max. Operation, max. Operation, max. Vibrations Vibration resistance during operation acc. to IEC 60068-2-6 Operation, tested according to IEC 60068-2-6 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	·	
Storage/transport, max. Altitude during operation relating to sea level Installation altitude, min. Installation altitude, max. Solve manual Relative humidity Operation, max. Vibrations Vibrations Vibration resistance during operation acc. to IEC 60068-2-6 Operation, tested according to IEC 60068-2-6 Shock testing Installation altitudes > 2 000 m, see manual Solve manual Solve manual 2 g (m/s²) wall mounting, 1 g (m/s²) DIN rail Yes Shock testing Yes; IEC 68, Part 2-27 half-sine: strength of the shock 15 g (peak value), duration 11 ms Pollutant concentrations	·	
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 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 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 		1,000 m
Relative humidity Operation, max. 95 %; no condensation Vibrations Vibration resistance during operation acc. to IEC 60068-2-6 Operation, tested according to IEC 60068-2-6 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		
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Vibrations	·	05.0/
 Vibration resistance during operation acc. to IEC 60068-2-6 Operation, tested according to IEC 60068-2-6 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 		95 %; no condensation
 Operation, tested according to IEC 60068-2-6 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 	Vibration resistance during operation acc. to IEC 60068-	2 g (m/s²) wall mounting, 1 g (m/s²) DIN rail
• 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	Operation, tested according to IEC 60068-2-6	Yes
Pollutant concentrations		
	tested according to IEC 60068-2-27	
● SO2 at RH < 60% without condensation S02: < 0.5 ppm; H2S: < 0.1 ppm; RH < 60% condensation-free	Pollutant concentrations	
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configuration / header		
configuration / programming / header		
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 of confidential configuration data 	Yes	
 Protection level: Write protection 	Yes	
 Protection level: Read/write protection 	Yes	
Protection level: Complete protection	Yes	
programming / cycle time monitoring / header		
 adjustable 	Yes	
Dimensions		
Width	150 mm	
Height	100 mm	
Depth	75 mm	
Weights		
Weight, approx.	530 g	

last modified:

10/9/2024