SIEMENS

Data sheet



SIPLUS S7-1200 CPU 1215C DC/DC/DC based on 6ES7215-1AG40-0XB0 with conformal coating, -20...+60 °C, compact CPU, DC/DC/DC, 2 PROFINET ports, onboard I/O: 14 DI 24 V DC 10 DQ 24 V DC 0.5 A 2 AI 0-10 V DC, 2 AQ 0-20 mA DC, power supply: DC 20.4-28.8 V DC, program/data memory 125 KB

General information	
Product type designation	CPU 1215C DC/DC/DC
Firmware version	V4.1
Engineering with	
 STEP 7 TIA Portal configurable/integrated from version 	see entry ID: 109746275
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
Load voltage L+	
 Rated value (DC) 	24 V
 permissible range, lower limit (DC) 	5 V
permissible range, upper limit (DC)	250 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 DC
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	125 kbyte
Load memory	
• integrated	4 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; / instruction
for word operations, typ.	1.5 µs; / instruction
for floating point arithmetic, typ.	2.5 µs; / instruction
CPU-blocks	
Number of blocks (total)	DBs, FCs, FBs, counters and timers. The maximum number of addressable

Biocks ranges from 1 to 05535. There is no restriction, the entire working memory, can be used		
Number, max. Limited only by RAM for code		
Number, max. Deta miras wind fully retarrivity Reference data area (ind. timers, counters, flags), max. 8 kbyte; Size of bit memory address area 8 kbyte; Size of bit memory address area Address area 9 culputs 9 culputs 1 024 byte 1 024 byte 1 024 byte Process mage 1 nputs, adjustable 9 culputs 9 culputs 1 kbyte 1 k	OB	memory can be used
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Retentive data area (incl. timers, counters, flags), max. Stize, max. 8 kbyte: Size of bit memory address area		Limited only by RAIM for code
Size, max. Skbyte, Size of bit memory address area		
Size, max. **Addises sures* **IfO address area* **Inputs* **Inputs* **Inputs* **Inputs*, adjustable* **Inpu		10 kbyte
Address area I/O address are	<u> </u>	
Inputs 1 024 byte	·	8 kbyte; Size of bit memory address area
Inputs	Address area	
Process image Inputs, adjustable Inputs adjustable Inputs adjustable Industria specifies and sp	I/O address area	
Process image	• Inputs	1 024 byte
Inputs, adjustable 1 kbyte 1	Outputs	1 024 byte
Outputs, adjustable Hardware configuration Number of modules per system, max. 1 ime of day Clock Hardware clock (real-time) Backup time Deviation per day, max. Digital inputs of which inputs usable for technological functions Source/sink input Number of signal '0' For signal '0' For signal '0' For standard inputs — parameterizable — parameterizable — of which high-speed outputs — to '1', max. — to '1' to '1', max. — to display suppose the outputs — vith resistive load, max. Unput dely for '0', max. 10 10 10 10 10 10 10 10 10 1	Process image	
Hardware configuration Number of modules per system, max. Time of day Clock Hardware clock (real-time) Backup time Deviation per day, max. 1480 h; Typical 1480 h; Typical 1490 h; Typica	 Inputs, adjustable 	1 kbyte
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Time of day	Hardware configuration	
Clock	Number of modules per system, max.	3 comm. modules, 1 signal board, 8 signal modules
■ Hardware clock (real-time) ■ Backup time ■ Deviation per day, max. Digital inputs ■ of digital inputs ■ of which inputs usable for technological functions Source/sink input ■ of which inputs usable for technological functions Source/sink input ■ yes ■ Number of Simultaneously controllable inputs all mounting positions ■ — up to 40 °C. max. Input voltage ■ Rated value (DC) ■ for signal "0" ■ for signal "1" ■ 15 ∨ DC at 1 mA ■ 15 ∨ DC at 2.5 mA Input delay (for rated value of input voltage) for standard inputs ■ — parameterizable ■ at "0" to "1", min. ■ at "0" to "1", min. ■ at "0" to "1", max. ■ parameterizable	Time of day	
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• Deviation per day, max.		
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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 — at "0" to "1", min. — at "0" to "1", max. for interrupt inputs — parameterizable Yes for technological functions — parameterizable • shielded, max. • unshielded, max. • unshielded, max. • of which high-speed outputs Number of digital outputs • of which high-speed outputs • with resistive load, max. • with resistive load • "0" to "1", max. 10,5 A Output delay with resistive load • "0" to "1", max. 1 μs • "1" to "0", max. 5 μs Relay outputs	·	165
- 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 at 100 kHz & 3 at 30 kHz, differential: 3 at 80 kHz & 3 at 30 kHz. Cable length • shielded, max. 500 m; 50 m for technological functions: No Digital outputs Number of digital outputs 10 • of which high-speed outputs 4; 100 kHz Pulse Train Output Switching capacity of the outputs • with resistive load, max. 0.5 A Output delay with resistive load • "0" to "1", max. 1 μs • "1" to "0", max. 5 μs Relay outputs		
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■ Rated value (DC) ■ for signal "0" ■ for signal "1" ■ for signal "1" ■ To V DC at 2.5 mA Input delay (for rated value of input voltage) for standard inputs — parameterizable — at "0" to "1", min. — at "0" to "1", max. For interrupt inputs — parameterizable		14
• for signal "0" • for signal "1" Input delay (for rated value of input voltage) for standard inputs — parameterizable — at "0" to "1", min. — at "0" to "1", max. for interrupt inputs — parameterizable parameterizable for technological functions — parameterizable • shielded, max. • unshielded, max. • of which high-speed outputs Number of digital outputs • with resistive load, max. • with resistive load, max. • of volted with resistive load • "0" to "1", max. 15 V DC at 1 mA 15 V DC at 2.5 mA 16 V DC at 2.5 mA 17 V DC at 2.5 mA 18 V DC at	·	04.1/
 for signal "1" Input delay (for rated value of input voltage) for standard inputs — parameterizable — at "0" to "1", min. — at "0" to "1", max. — to interrupt inputs — parameterizable Yes for interrupt inputs — parameterizable Yes for technological functions — parameterizable Single phase: 3 at 100 kHz & 3 at 30 kHz, differential: 3 at 80 kHz & 3 at 30 kHz. 300 m; 50 m for technological functions: No Cable length • shielded, max. • unshielded, max. 00 m; 50 m for technological functions: No Digital outputs • of which high-speed outputs • with resistive load, max. 0.5 A Output delay with resistive load • "0" to "1", max. • "1" to "0", max. Relay outputs		
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- parameterizable - at "0" to "1", min at "0" to "1", min at "0" to "1", max. for interrupt inputs - parameterizable		
groups of four - at "0" to "1", min at "0" to "1", max. 12.8 ms for interrupt inputs - parameterizable for technological functions - parameterizable Single phase: 3 at 100 kHz & 3 at 30 kHz, differential: 3 at 80 kHz & 3 at 30 kHz. Cable length • shielded, max. • unshielded, max. • unshielded, max. 300 m; 50 m for technological functions: No Digital outputs Number of digital outputs • of which high-speed outputs • with resistive load, max. • with resistive load, max. 0.5 A Output delay with resistive load • "0" to "1", max. • "1" to "0", max. Relay outputs Relay outputs	for standard inputs	
- at "0" to "1", min. - at "0" to "1", min. - at "0" to "1", max. for interrupt inputs - parameterizable yes for technological functions - parameterizable Single phase : 3 at 100 kHz & 3 at 30 kHz, differential: 3 at 80 kHz & 3 at 30 kHz KHZ Cable length • shielded, max. • unshielded, max. • unshielded, max. 100 m; for technological functions: No Digital outputs Number of digital outputs • of which high-speed outputs • with resistive load, max. • with resistive load, max. • "1" to "0", max. Relay outputs Relay outputs 12.8 ms 50.2 ms 10 kHz & 3 at 30 kHz, differential: 3 at 80 kHz & 3 at 30 kH	— parameterizable	
- at "0" to "1", max. for interrupt inputs — parameterizable for technological functions — parameterizable Single phase : 3 at 100 kHz & 3 at 30 kHz, differential: 3 at 80 kHz & 3 at 30 kHz KHz Cable length • shielded, max. • unshielded, max. • unshielded, max. Single phase : 3 at 100 kHz & 3 at 30 kHz, differential: 3 at 80 kHz & 3 at 30 kHz Single phase : 3 at 100 kHz & 3 at 30 kHz, differential: 3 at 80 kHz & 3 at 30 kHz KHz Cable length • shielded, max. 500 m; 50 m for technological functions 300 m; for technological functions: No Digital outputs Number of digital outputs • of which high-speed outputs • with resistive load, max. 0.5 A Output delay with resistive load • "0" to "1", max. • "1" to "0", max. 1 μs • "1" to "0", max. 5 μs Relay outputs	ot "0" to "1" min	
for interrupt inputs — parameterizable for technological functions — parameterizable Single phase: 3 at 100 kHz & 3 at 30 kHz, differential: 3 at 80 kHz & 3 at 30 kH		
— parameterizable for technological functions — parameterizable Single phase : 3 at 100 kHz & 3 at 30 kHz, differential: 3 at 80 kHz & 3 at 30 kHz kHz Cable length • shielded, max. • unshielded, max. • unshielded, max. 500 m; 50 m for technological functions auon m; for technological functions: No Digital outputs Number of digital outputs • of which high-speed outputs • with resistive load, max. 0.5 A Output delay with resistive load • "0" to "1", max. • "1" to "0", max. Flash Relay outputs		12.8 IIIS
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— parameterizable Single phase: 3 at 100 kHz & 3 at 30 kHz, differential: 3 at 80 kHz & 3 at 30 kHz & 3 at 30 kHz. Cable length • shielded, max. • unshielded, max. Digital outputs Number of digital outputs • of which high-speed outputs Switching capacity of the outputs • with resistive load, max. Output delay with resistive load • "0" to "1", max. • "1" to "0", max. Relay outputs Single phase: 3 at 100 kHz & 3 at 30 kHz, differential: 3 at 80 kHz & 3 at 30 kHz & 3 at 30 kHz & 3 at 30 kHz. 5 un shielded, max. 500 m; 50 m for technological functions: No 10 4; 100 kHz Pulse Train Output 5 with resistive load, max. 0.5 A Output delay with resistive load • "0" to "1", max. • "1" to "0", max. 5 μs Relay outputs	·	Yes
Cable length • shielded, max. • unshielded, max. • unshielded, max. Digital outputs Number of digital outputs • of which high-speed outputs Switching capacity of the outputs • with resistive load, max. Output delay with resistive load • "0" to "1", max. • "1" to "0", max. Relay outputs Soun; 50 m for technological functions: No 10 4; 100 kHz Pulse Train Output 5, A 0.5 A 1 µs 5 µs Relay outputs		
Cable length • shielded, max. • unshielded, max. • unshielded, max. Digital outputs Number of digital outputs • of which high-speed outputs • with resistive load, max. Output delay with resistive load • "0" to "1", max. • "1" to "0", max. Cable length 500 m; 50 m for technological functions: No 10 4; 100 kHz Pulse Train Output 0.5 A 0.5 A Output delay with resistive load • "0" to "1", max. • "1" to "0", max. 5 µs Relay outputs	— parameterizable	
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 unshielded, max. Digital outputs Number of digital outputs of which high-speed outputs Switching capacity of the outputs with resistive load, max. Output delay with resistive load "0" to "1", max. "1" to "0", max. Relay outputs 		500 m: 50 m for technological functions
Digital outputs 10 • of which high-speed outputs 4; 100 kHz Pulse Train Output Switching capacity of the outputs 0.5 A • with resistive load, max. 0.5 A Output delay with resistive load • "0" to "1", max. 1 μs • "1" to "0", max. 5 μs Relay outputs		
Number of digital outputs of which high-speed outputs 4; 100 kHz Pulse Train Output Switching capacity of the outputs with resistive load, max. Output delay with resistive load o "0" to "1", max. o "1" to "0", max. Relay outputs		500 m, for technological functions. No
of which high-speed outputs Switching capacity of the outputs with resistive load, max. Output delay with resistive load "0" to "1", max. "1" to "0", max. Relay outputs 4; 100 kHz Pulse Train Output 0.5 A 1 µs 5 µs		40
Switching capacity of the outputs • with resistive load, max. Output delay with resistive load • "0" to "1", max. • "1" to "0", max. Relay outputs		
 with resistive load, max. Output delay with resistive load "0" to "1", max. "1" to "0", max. False outputs 		4; 100 KHZ Pulse Train Output
Output delay with resistive load • "0" to "1", max. 1 μs • "1" to "0", max. 5 μs Relay outputs		
 "0" to "1", max. "1" to "0", max. Elay outputs 		0.5 A
• "1" to "0", max. 5 μs Relay outputs		
Relay outputs		1 µs
	• "1" to "0", max.	5 μs
Number of relay outputs	Relay outputs	
▼ reuniber of relay outputs	Number of relay outputs	0
Cable length	Cable length	
• shielded, max. 500 m	• shielded, max.	500 m
• unshielded, max. 150 m	• unshielded, max.	150 m
Analog inputs	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
Interface types	
• RJ 45 (Ethernet)	Yes
Protocols	
PROFINET IO Controller	Yes
PROFINET IO Device	Yes; Also simultaneously with IO-Device functionality
PROFINET IO Controller	,
Transmission rate, max.	100 Mbit/s
Services	
Number of connectable IO Devices, max.	16
PROFINET IO Device	
Services	
— 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 required
AS-Interface	Yes
Protocols (Ethernet)	
• TCP/IP	Yes
Open IE communication	
• TCP/IP	Yes
• ISO-on-TCP (RFC1006)	Yes
• UDP	Yes
Web server	100
	Yes
supported User defined websites	
User-defined websites Further protocols	Yes
Further protocols	Von
MODBUS communication functions / booder	Yes
communication functions / header	
S7 communication	

- avvananta d	Van
• supported	Yes
as server	Yes
as client	Yes
Number of connections	4C: dynamically
overall Test commissioning functions	16; dynamically
Status/control	
Status/control variable	Yes
Variables	Inputs/outputs, memory bits, DBs, distributed I/Os, timers, counters
Forcing	inputs/outputs, memory bits, bbs, distributed 1/03, timers, counters
• Forcing	Yes
Diagnostic buffer	
• present	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	4; With integrated outputs
PID controller	Yes
Number of alarm inputs	4
Number of pulse outputs	4
Limit frequency (pulse)	100 kHz
Potential separation	
Potential separation digital inputs	
 Potential separation digital inputs 	No
between the channels, in groups of	1
Potential separation digital outputs	
 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
— 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	V.,
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	Voc
 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	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 Glass & according to EIN 33011
	IP20
IP degree of protection Ambient conditions	11 20
Free fall	0.2 m; five times, in product product
Fall height, max. Ambient temperature during eneration.	0.3 m; five times, in product package
Ambient temperature during operation	20 °C: - Tmin (incl. condensation/front): start up @ 0 °C
min. max.	-20 °C; = Tmin (incl. condensation/frost); start-up @ 0 °C 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

At cold restart, min. Archivet temporature during storage/temporatetion.	0°C
Ambient temperature during storage/transportation	-40 °C
• min.	70 °C
Max. Altitude during operation relating to sea level.	70 C
Altitude during operation relating to sea level Installation altitude above sea level, max.	5 000 m
Ambient air temperature-barometric pressure-altitude	Tmin Tmax at 1 140 hPa 795 hPa (-1 000 m +2 000 m) // Tmin (Tmax
Trinsient di temperature baroniene pressure dititade	- 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)
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	Yes
Shock testing	V 15000 D 10051 K 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
• 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	V 01 000 11 15 1 1 1 1 1 1 1 1 1 1 1 1 1
— 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	130 mm
Height	100 mm
Depth	75 mm

Weights	
Weight, approx.	500 g
last modified:	414/2022 [\$\bar{\alpha}\$