

SIPLUS S7-1200 CPU 1212C DC/DC/DC -40...+70 °C with conformal coating based on 6ES7212-1AE40-0XB0 . compact CPU, DC/DC/DC, onboard I/O: "8 DI 24 V DC;" "6 DO 24 V DC;" 2 AI 0-10 V DC, Power supply: 20.4-28.8V DC, Program/data memory 50 KB

General information

Product type designation	CPU 1212C DC/DC/DC
--------------------------	--------------------

Supply voltage

Rated value (DC)	Yes
<ul style="list-style-type: none"> • 24 V DC 	
permissible range, lower limit (DC)	20.4 V
permissible range, upper limit (DC)	28.8 V
Reverse polarity protection	Yes

Load voltage L+

<ul style="list-style-type: none"> • Rated value (DC) 	24 V
<ul style="list-style-type: none"> • permissible range, lower limit (DC) 	20.4 V
<ul style="list-style-type: none"> • permissible range, upper limit (DC) 	28.8 V

Input current

Current consumption (rated value)	400 mA; CPU only
Current consumption, max.	1 200 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.	1 000 mA; Max. 5 V DC for SM and CM
----------------------------------	-------------------------------------

Encoder supply

24 V encoder supply	
<ul style="list-style-type: none"> • 24 V 	L+ minus 4 V DC min.

Power loss

Power loss, typ.	9 W
------------------	-----

Memory

Work memory	
<ul style="list-style-type: none"> • integrated 	75 kbyte
<ul style="list-style-type: none"> • expandable 	No
Load memory	
<ul style="list-style-type: none"> • integrated 	1 Mbyte
<ul style="list-style-type: none"> • Plug-in (SIMATIC Memory Card), max. 	with SIMATIC memory card
Backup	
<ul style="list-style-type: none"> • present 	Yes; maintenance-free

• without battery	Yes
CPU processing times	
for bit operations, typ.	0.085 µs; / instruction
for word operations, typ.	1.7 µs; / 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	
• Number, 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	
Process image	
• Inputs, adjustable	1 kbyte
• Outputs, adjustable	1 kbyte
Hardware configuration	
Number of modules per system, max.	3 com. modules, no signal board can be used, 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

<ul style="list-style-type: none"> • for signal "0" • for signal "1" 	5 V DC at 1 mA 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 counter/technological functions	
— parameterizable	Single phase: 3 @ 100 kHz & 1 @ 30 kHz, differential: 3 @ 80 kHz & 1 @ 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
<ul style="list-style-type: none"> • 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	
<ul style="list-style-type: none"> • with resistive load, max. • on lamp load, max. 	0.5 A 5 W
Output voltage	
<ul style="list-style-type: none"> • for signal "0", max. • for signal "1", min. 	0.1 V; with 10 kOhm load 20 V
Output current	
<ul style="list-style-type: none"> • for signal "1" rated value • for signal "0" residual current, max. 	0.5 A 0.1 mA
Output delay with resistive load	
<ul style="list-style-type: none"> • "0" to "1", max. • "1" to "0", max. 	1 μs 5 μs
Switching frequency	
<ul style="list-style-type: none"> • of the pulse outputs, with resistive load, max. 	100 kHz
Cable length	
<ul style="list-style-type: none"> • shielded, max. • unshielded, max. 	500 m 150 m
Analog inputs	
Number of analog inputs	2
Input ranges	
<ul style="list-style-type: none"> • 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	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
Encoder	
Connectable encoders	
• 2-wire sensor	Yes
1. Interface	
Interface type	PROFINET
Physics	Ethernet
Isolated	Yes
automatic detection of transmission rate	Yes
Autonegotiation	Yes
Autocrossing	Yes
Functionality	
• PROFINET IO Controller	Yes
• PROFINET IO Device	Yes
• Open IE communication	Yes
• Web server	Yes
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
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	
• User-defined websites	Yes
Further protocols	
• MODBUS	Yes
Communication functions	
S7 communication	
• supported	Yes
• as server	Yes
• as client	Yes
Web server	
• supported	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	
Number of counters	4
Counting frequency (counter) 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 DO
PID controller	Yes
Number of alarm inputs	4
Number of pulse outputs	4
Limit frequency (pulse)	100 kHz

Potential separation	
Potential separation digital inputs	
<ul style="list-style-type: none"> Potential separation digital inputs 	500V AC for 1 minute
<ul style="list-style-type: none"> between the channels, in groups of 	1
Potential separation digital outputs	
<ul style="list-style-type: none"> Potential separation digital outputs 	Yes
<ul style="list-style-type: none"> between the channels 	No
<ul style="list-style-type: none"> between the channels, in groups of 	1
EMC	
Interference immunity against discharge of static electricity	
<ul style="list-style-type: none"> Interference immunity against discharge of static electricity acc. to IEC 61000-4-2 	Yes
<ul style="list-style-type: none"> — Test voltage at air discharge 	8 kV
<ul style="list-style-type: none"> — Test voltage at contact discharge 	6 kV
Interference immunity to cable-borne interference	
<ul style="list-style-type: none"> Interference immunity on supply lines acc. to IEC 61000-4-4 	Yes
<ul style="list-style-type: none"> Interference immunity on signal cables acc. to IEC 61000-4-4 	Yes
Interference immunity against voltage surge	
<ul style="list-style-type: none"> on the supply lines acc. to IEC 61000-4-5 	Yes
Interference immunity against conducted variable disturbance induced by high-frequency fields	
<ul style="list-style-type: none"> Interference immunity against high-frequency radiation acc. to IEC 61000-4-6 	Yes
Emission of radio interference acc. to EN 55 011	
<ul style="list-style-type: none"> Limit class A, for use in industrial areas 	Yes; Group 1
<ul style="list-style-type: none"> 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	
Degree of protection acc. to EN 60529	
<ul style="list-style-type: none"> IP20 	Yes
Ambient conditions	
Free fall	
<ul style="list-style-type: none"> Fall height, max. 	0.3 m; five times, in product package
Ambient temperature during operation	
<ul style="list-style-type: none"> min. 	-40 °C; = Tmin; Startup @ -25 °C
<ul style="list-style-type: none"> max. 	70 °C; = Tmax; Tmax > +55 °C number of simultaneously switched-on digital inputs 4, digital outputs 3, analog inputs 2 (no adjacent points) with horizontal mounting position; Tmax > +60 °C number of simultaneously switched-on digital inputs 3, digital outputs 2, analog inputs 0 (no adjacent points) with horizontal mounting position
Ambient temperature during storage/transportation	

• min.	-40 °C
• max.	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 - 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/s ²) wall mounting, 1 g (m/s ²) 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 value), duration 11 ms
Resistance	
Coolants and lubricants	
— Resistant to commercially available coolants and lubricants	Yes
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; *
from supply voltage 1L+	
— Note regarding classification of environmental conditions acc. to EN 60721	* The supplied plug covers must remain in place over the unused interfaces during operation!
Configuration	
Programming	
Programming language	
— LAD	Yes
— FBD	Yes

— SCL

Yes

Cycle time monitoring

- adjustable

Yes

Dimensions

Width

90 mm

Height

100 mm

Depth

75 mm

Weights

Weight, approx.

370 g

last modified:

05/18/2018