



Figure similar

SIPLUS S7-1200 CPU 1212C DC/DC/DC based on 6ES7212-1AE40-0XB0 with conformal coating, -20...+60 °C, compact CPU, DC/DC/DC, onboard I/O: 8 DI 24 V DC 6 DQ 24 V DC 2 AI 0-10 V DC, power supply: 20.4-28.8 V DC program/data memory 50 KB

General information	
Product type designation	CPU 1212C DC/DC/DC
Engineering with	
<ul style="list-style-type: none"> STEP 7 TIA Portal configurable/integrated from version 	see entry ID: 109746275
Supply voltage	
Rated value (DC)	
<ul style="list-style-type: none"> 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+	
<ul style="list-style-type: none"> Rated value (DC) permissible range, lower limit (DC) permissible range, upper limit (DC) 	24 V 20.4 V 28.8 V
Input current	
Current consumption (rated value)	400 mA; Typical
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 expandable 	75 kbyte No
Load memory	
<ul style="list-style-type: none"> integrated Plug-in (SIMATIC Memory Card), max. 	1 Mbyte with SIMATIC memory card
Backup	
<ul style="list-style-type: none"> present without battery 	Yes; maintenance-free 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

- 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

Process image

- Inputs, adjustable 1 kbyte
- Outputs, adjustable 1 kbyte

Hardware configuration

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 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. 0.1 ms
— at "0" to "1", max. 20 ms

for interrupt inputs

— parameterizable Yes

for 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
• 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
- for signal "1", min. 20 V

Output current

- for signal "1" rated value 0.5 A
- for signal "0" residual current, max. 0.1 mA

Output delay with resistive load	
• "0" to "1", max.	1 µs
• "1" to "0", max.	3 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	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
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
• 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
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	
• supported	Yes
• User-defined websites	Yes
Further protocols	
• MODBUS	Yes
communication functions / header	
S7 communication	
• 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	
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	
• Potential separation digital inputs	500V AC for 1 minute
• 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
— 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 induced 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	
<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. ● max. 	-20 °C; = Tmin (incl. condensation/frost); start-up @ 0 °C 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
<ul style="list-style-type: none"> ● horizontal installation, min. ● horizontal installation, max. ● vertical installation, min. ● vertical installation, max. ● At cold restart, min. 	-20 °C 60 °C -20 °C 50 °C 0 °C
Ambient temperature during storage/transportation	
<ul style="list-style-type: none"> ● min. ● max. 	-40 °C 70 °C
Altitude during operation relating to sea level	
<ul style="list-style-type: none"> ● Installation altitude above sea level, max. ● Ambient air temperature-barometric pressure-altitude 	5 000 m 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	
<ul style="list-style-type: none"> ● With condensation, tested in accordance with IEC 60068-2-38, max. 	100 %; RH incl. condensation/frost (no commissioning under condensation conditions)
Vibrations	
<ul style="list-style-type: none"> ● Vibration resistance during operation acc. to IEC 60068-2-6 ● Operation, tested according to IEC 60068-2-6 	2 g (m/s ²) wall mounting, 1 g (m/s ²) DIN rail Yes
Shock testing	
<ul style="list-style-type: none"> ● 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	
<ul style="list-style-type: none"> — Resistant to commercially available coolants and lubricants 	Yes; Incl. diesel and oil droplets in the air
Use in stationary industrial systems	
<ul style="list-style-type: none"> — to biologically active substances according to EN 60721-3-3 — to chemically active substances according to EN 60721-3-3 — to mechanically 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 Yes; Class 3C4 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); * Yes; Class 3S4 incl. sand, dust, *
Use on ships/at sea	
<ul style="list-style-type: none"> — to biologically active substances according to EN 60721-3-6 — to chemically active substances according to EN 60721-3-6 — to mechanically active substances according to EN 60721-3-6 	Yes; Class 6B2 mold and fungal spores (excluding fauna); Class 6B3 on request Yes; Class 6C3 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); * Yes; Class 6S3 incl. sand, dust; *
Usage in industrial process technology	
<ul style="list-style-type: none"> — Against chemically active substances acc. to EN 60654-4 — Environmental conditions for process, measuring and control systems acc. to ANSI/ISA-71.04 	Yes; Class 3 (excluding trichlorethylene) 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	
<ul style="list-style-type: none"> — 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	
<ul style="list-style-type: none"> ● Coatings for printed circuit board assemblies acc. to EN 61086 ● Protection against fouling acc. to EN 60664-3 ● Military testing according to MIL-I-46058C, Amendment 7 ● Qualification and Performance of Electrical Insulating Compound for Printed Board Assemblies according to IPC-CC-830A 	Yes; Class 2 for high reliability Yes; Type 1 protection Yes; Discoloration of coating possible during service life 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.	370 g
last modified:	4/1/2022 