



SIPLUS S7-1200 CPU 1212C DC/DC/DC based on 6ES7212-1AE40-0XB0 with conformal coating, -40...+70 °C, start up -25 °C, signal board: 0, 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 75 KB

General information	
Product type designation	CPU 1212C DC/DC/DC
based on	<a href="#">6ES7212-1AE40-0XB0</a>
Engineering with	
<ul style="list-style-type: none"> <li>STEP 7 TIA Portal configurable/integrated from version</li> </ul>	see entry ID: 109746275
Supply voltage	
Rated value (DC)	
<ul style="list-style-type: none"> <li>24 V DC</li> </ul>	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"> <li>Rated value (DC)</li> <li>permissible range, lower limit (DC)</li> <li>permissible range, upper limit (DC)</li> </ul>	24 V 20.4 V 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"> <li>24 V</li> </ul>	L+ minus 4 V DC min.
Power loss	
Power loss, typ.	9 W
Memory	
Work memory	
<ul style="list-style-type: none"> <li>integrated</li> </ul>	75 kbyte
Load memory	
<ul style="list-style-type: none"> <li>integrated</li> <li>Plug-in (SIMATIC Memory Card), max.</li> </ul>	1 Mbyte with SIMATIC memory card
Backup	
<ul style="list-style-type: none"> <li>present</li> <li>without battery</li> </ul>	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
<b>OB</b>	
• Number, max.	Limited only by RAM for code
<b>Data areas and their retentivity</b>	
Retentive data area (incl. timers, counters, flags), max.	10 kbyte
<b>Flag</b>	
• Size, max.	4 kbyte; Size of bit memory address area
<b>Local data</b>	
• per priority class, max.	16 kbyte; Priority class 1 (program cycle): 16 KB, priority class 2 to 26: 6 KB
<b>Address area</b>	
<b>Process image</b>	
• Inputs, adjustable	1 kbyte
• Outputs, adjustable	1 kbyte
<b>Hardware configuration</b>	
Number of modules per system, max.	3 com. modules, no signal board can be used, 2 signal modules
<b>Time of day</b>	
<b>Clock</b>	
• Hardware clock (real-time)	Yes
• Backup time	480 h; Typical
• Deviation per day, max.	60 s/month at 25 °C
<b>Digital inputs</b>	
Number of digital inputs	8; Integrated
• of which inputs usable for technological functions	4; HSC (High Speed Counting)
Source/sink input	Yes
<b>Number of simultaneously controllable inputs</b>	
all mounting positions	
— up to 40 °C, max.	8
<b>Input voltage</b>	
• Rated value (DC)	24 V
• for signal "0"	5 V DC at 1 mA
• for signal "1"	15 V DC at 2.5 mA
<b>Input delay (for rated value of input voltage)</b>	
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 & 1 @ 30 kHz, differential: 3 @ 80 kHz & 1 @ 30 kHz
<b>Cable length</b>	
• shielded, max.	500 m; 50 m for technological functions
• unshielded, max.	300 m; for technological functions: No
<b>Digital outputs</b>	
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)
<b>Switching capacity of the outputs</b>	
• with resistive load, max.	0.5 A
• on lamp load, max.	5 W
<b>Output voltage</b>	
• for signal "0", max.	0.1 V; with 10 kOhm load
• for signal "1", min.	20 V
<b>Output current</b>	
• for signal "1" rated value	0.5 A
• for signal "0" residual current, max.	0.1 mA
<b>Output delay with resistive load</b>	
• "0" to "1", max.	1 µs

• "1" to "0", max.	5 $\mu$ s
<b>Switching frequency</b>	
• of the pulse outputs, with resistive load, max.	100 kHz
<b>Relay outputs</b>	
• Number of relay outputs	0
<b>Cable length</b>	
• shielded, max.	500 m
• unshielded, max.	150 m
<b>Analog inputs</b>	
Number of analog inputs	2
<b>Input ranges</b>	
• Voltage	Yes
<b>Input ranges (rated values), voltages</b>	
• 0 to +10 V	Yes
— Input resistance (0 to 10 V)	$\geq 100k$ ohms
<b>Cable length</b>	
• shielded, max.	100 m; twisted and shielded
<b>Analog outputs</b>	
Number of analog outputs	0
<b>Analog value generation for the inputs</b>	
<b>Integration and conversion time/resolution per channel</b>	
• Resolution with overrange (bit including sign), max.	10 bit
• Integration time, parameterizable	Yes
• Conversion time (per channel)	625 $\mu$ s
<b>Encoder</b>	
<b>Connectable encoders</b>	
• 2-wire sensor	Yes
<b>1. Interface</b>	
Interface type	PROFINET
Isolated	Yes
automatic detection of transmission rate	Yes
Autonegotiation	Yes
Autocrossing	Yes
<b>Interface types</b>	
• RJ 45 (Ethernet)	Yes
<b>Protocols</b>	
• PROFINET IO Controller	Yes
• PROFINET IO Device	Yes
• Open IE communication	Yes
• Web server	Yes
<b>PROFINET IO Controller</b>	
• Transmission rate, max.	100 Mbit/s
<b>Services</b>	
— Number of connectable IO Devices, max.	16
<b>PROFINET IO Device</b>	
<b>Services</b>	
— Shared device	Yes
— Number of IO Controllers with shared device, max.	2
<b>Protocols</b>	
Supports protocol for PROFINET IO	Yes
PROFIsafe	No
PROFIBUS	Yes; CM 1243-5 required
AS-Interface	Yes
<b>Protocols (Ethernet)</b>	
• TCP/IP	Yes
<b>Open IE communication</b>	
• TCP/IP	Yes
• ISO-on-TCP (RFC1006)	Yes
• UDP	Yes
<b>Web server</b>	

• supported	Yes
• User-defined websites	Yes
<b>Further protocols</b>	
• MODBUS	Yes
<b>communication functions / header</b>	
<b>S7 communication</b>	
• supported	Yes
• as server	Yes
• as client	Yes
<b>Number of connections</b>	
• overall	16; dynamically
<b>Test commissioning functions</b>	
<b>Status/control</b>	
• Status/control variable	Yes
• Variables	Inputs/outputs, memory bits, DBs, distributed I/Os, timers, counters
<b>Forcing</b>	
• Forcing	Yes
<b>Diagnostic buffer</b>	
• present	Yes
<b>Traces</b>	
• Number of configurable Traces	2; Up to 512 KB of data per trace are possible
<b>Integrated Functions</b>	
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
<b>Potential separation</b>	
<b>Potential separation digital inputs</b>	
• Potential separation digital inputs	500V AC for 1 minute
• between the channels, in groups of	1
<b>Potential separation digital outputs</b>	
• Potential separation digital outputs	Yes
• between the channels	No
• between the channels, in groups of	1
<b>EMC</b>	
<b>Interference immunity against discharge of static electricity</b>	
• 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
<b>Interference immunity to cable-borne interference</b>	
• Interference immunity on supply lines acc. to IEC 61000-4-4	Yes
• Interference immunity on signal cables acc. to IEC 61000-4-4	Yes
<b>Interference immunity against voltage surge</b>	
• Interference immunity on supply lines acc. to IEC 61000-4-5	Yes
<b>Interference immunity against conducted variable disturbance induced by high-frequency fields</b>	
• Interference immunity against high-frequency radiation acc. to IEC 61000-4-6	Yes
<b>Emission of radio interference acc. to EN 55 011</b>	
• 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
<b>Degree and class of protection</b>	
IP degree of protection	IP20
<b>Ambient conditions</b>	

<b>Free fall</b>	
• Fall height, max.	0.3 m; five times, in product package
<b>Ambient temperature during operation</b>	
• min.	-40 °C; = Tmin (incl. condensation/frost); start-up @ -25 °C
• 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
• At cold restart, min.	-25 °C
<b>Ambient temperature during storage/transportation</b>	
• min.	-40 °C
• max.	70 °C
<b>Altitude during operation relating to sea level</b>	
• 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)
<b>Relative humidity</b>	
• With condensation, tested in accordance with IEC 60068-2-38, max.	100 %; RH incl. condensation/frost (no commissioning under condensation conditions)
<b>Vibrations</b>	
• Vibration resistance during operation acc. to IEC 60068-2-6	2 g (m/s <sup>2</sup> ) wall mounting, 1 g (m/s <sup>2</sup> ) DIN rail
• Operation, tested according to IEC 60068-2-6	Yes
<b>Shock testing</b>	
• 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
<b>Resistance</b>	
<b>Coolants and lubricants</b>	
— Resistant to commercially available coolants and lubricants	Yes; Incl. diesel and oil droplets in the air
<b>Use in stationary industrial systems</b>	
— 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, *
<b>Use on ships/at sea</b>	
— 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; *
<b>Usage in industrial process technology</b>	
— 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)
<b>Remark</b>	
— 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!
<b>Conformal coating</b>	
• 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
<b>configuration / header</b>	
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:

5/29/2024 