

SIMATIC S7-1200, CPU 1211C, COMPACT CPU, DC/DC/RELAY,  
ONBOARD I/O: 6 DI 24V DC; 4 DO RELAY 2A; 2 AI 0 - 10V DC,  
POWER SUPPLY: DC 20.4 - 28.8 V DC, PROGRAM/DATA  
MEMORY: 50 KB



General information	
Product type designation	CPU 1211C DC/DC/Relay
Firmware version	V4.1
Engineering with	
<ul style="list-style-type: none"> <li>Programming package</li> </ul>	STEP 7 V13 SP1 or higher
Display	
with display	No
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
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)	300 mA; CPU only
Current consumption, max.	900 mA; CPU with all expansion modules
Inrush current, max.	12 A; at 28.8 V DC

### Encoder supply

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

### Output current

for backplane bus (5 V DC), max.	750 mA; Max. 5 V DC for CM
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### Power loss

Power loss, typ.	8 W
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### Memory

Type of memory	RAM
Work memory	
<ul style="list-style-type: none"> <li>• integrated</li> </ul>	50 kbyte
<ul style="list-style-type: none"> <li>• expandable</li> </ul>	No
Load memory	
<ul style="list-style-type: none"> <li>• integrated</li> </ul>	1 Mbyte
<ul style="list-style-type: none"> <li>• Plug-in (SIMATIC Memory Card), max.</li> </ul>	with SIMATIC memory card
Backup	
<ul style="list-style-type: none"> <li>• present</li> </ul>	Yes; maintenance-free
<ul style="list-style-type: none"> <li>• without battery</li> </ul>	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	
<ul style="list-style-type: none"> <li>• Number, max.</li> </ul>	Limited only by RAM for code

### Data areas and their retentivity

retentive data area in total (incl. times, counters, flags), max.	10 kbyte
Flag	
<ul style="list-style-type: none"> <li>• Number, max.</li> </ul>	4 kbyte; Size of bit memory address area
Local data	
<ul style="list-style-type: none"> <li>• per priority class, max.</li> </ul>	16 kbyte; Priority class 1 (program cycle): 16 KB, priority class 2 to 26: 6 KB

### Address area

<b>Process image</b>	
• Inputs, adjustable	1 kbyte
• Outputs, adjustable	1 kbyte
<b>Hardware configuration</b>	
Number of modules per system, max.	3 communication modules, 1 signal board
<b>Time of day</b>	
<b>Clock</b>	
• Hardware clock (real-time clock)	Yes
• Backup time	480 h; Typical
• Deviation per day, max.	+/- 60 s/month at 25 °C
<b>Digital inputs</b>	
Number of digital inputs	6; Integrated
• of which inputs usable for technological functions	3; HSC (High Speed Counting)
integrated channels (DI)	6
m/p-reading	Yes
<b>Number of simultaneously controllable inputs</b>	
all mounting positions	
— up to 40 °C, max.	6
<b>Input voltage</b>	
• Rated value (DC)	24 V
• for signal "0"	5 V DC at 1 mA
• for signal "1"	15 VDC 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 counter/technological functions	
— parameterizable	Single phase : 3 @ 100 kHz, differential: 3 @ 80 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	4; Relays
integrated channels (DO)	4
<b>Switching capacity of the outputs</b>	
• with resistive load, max.	2 A

• on lamp load, max.	30 W with DC, 200 W with AC
<b>Output delay with resistive load</b>	
• "0" to "1", max.	10 ms; max.
• "1" to "0", max.	10 ms; max.
<b>Switching frequency</b>	
• of the pulse outputs, with resistive load, max.	1 Hz
<b>Relay outputs</b>	
• Number of relay outputs	4
• Number of operating cycles, max.	mechanically 10 million, at rated load voltage 100 000
<b>Cable length</b>	
• shielded, max.	500 m
• unshielded, max.	150 m

<b>Analog inputs</b>	
Number of analog inputs	2
• For voltage/current measurement	2
integrated channels (AI)	2; 0 to 10V
<b>Input ranges</b>	
• Voltage	Yes
<b>Input ranges (rated values), voltages</b>	
• 0 to +10 V	Yes
• Input resistance (0 to 10 V)	≥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</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 μs

<b>Encoder</b>	
<b>Connectable encoders</b>	
• 2-wire sensor	Yes

<b>1. Interface</b>	
Interface type	PROFINET
Physics	Ethernet
Isolated	Yes
automatic detection of transmission rate	Yes
Autonegotiation	Yes

Autocrossing	Yes
<b>Functionality</b>	
<ul style="list-style-type: none"> <li>• PROFINET IO Controller</li> <li>• PROFINET IO Device</li> </ul>	<p>Yes</p> <p>Yes; Also simultaneously with IO-Device functionality</p>
<b>PROFINET IO Controller</b>	
<ul style="list-style-type: none"> <li>• Transmission rate, max.</li> <li>• Number of connectable IO Devices, max.</li> </ul>	<p>100 Mbit/s</p> <p>16</p>
<b>PROFINET IO Device</b>	
<b>Services</b>	
<ul style="list-style-type: none"> <li>— Shared device</li> <li>— Number of IO Controllers with shared device, max.</li> </ul>	<p>Yes</p> <p>2</p>
<b>Protocols</b>	
Supports protocol for PROFINET IO	Yes
PROFIBUS	Yes; CM 1243-5 required
AS-Interface	Yes
<b>Protocols (Ethernet)</b>	
<ul style="list-style-type: none"> <li>• TCP/IP</li> </ul>	Yes
<b>Further protocols</b>	
<ul style="list-style-type: none"> <li>• MODBUS</li> </ul>	Yes
<b>Communication functions</b>	
<b>S7 communication</b>	
<ul style="list-style-type: none"> <li>• supported</li> <li>• as server</li> <li>• as client</li> </ul>	<p>Yes</p> <p>Yes</p> <p>Yes</p>
<b>Open IE communication</b>	
<ul style="list-style-type: none"> <li>• TCP/IP</li> <li>• ISO-on-TCP (RFC1006)</li> <li>• UDP</li> </ul>	<p>Yes</p> <p>Yes</p> <p>Yes</p>
<b>Web server</b>	
<ul style="list-style-type: none"> <li>• supported</li> <li>• User-defined websites</li> </ul>	<p>Yes</p> <p>Yes</p>
<b>Number of connections</b>	
<ul style="list-style-type: none"> <li>• overall</li> </ul>	16; dynamically
<b>Test commissioning functions</b>	
<b>Status/control</b>	
<ul style="list-style-type: none"> <li>• Status/control variable</li> <li>• Variables</li> </ul>	<p>Yes</p> <p>Inputs/outputs, memory bits, DBs, distributed I/Os, timers, counters</p>
<b>Forcing</b>	
<ul style="list-style-type: none"> <li>• Forcing</li> </ul>	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>	
Number of counters	3
Counting frequency (counter) max.	100 kHz
Frequency meter	Yes
controlled positioning	Yes
Number of position-controlled positioning axes, max.	8
Number of positioning axes via pulse-direction interface	Up to 4 with SB 1222
PID controller	Yes
Number of alarm inputs	4
<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	Relays
• 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>	
• on the 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

Degree and class of protection	
Degree of protection acc. to EN 60529	
• IP20	Yes
Standards, approvals, certificates	
CE mark	Yes
UL approval	Yes
cULus	Yes
FM approval	Yes
RCM (formerly C-TICK)	Yes
Marine approval	
• Marine approval	Yes
Ambient conditions	
Free fall	
• Drop height, max. (in packaging)	0.3 m; five times, in dispatch package
Ambient temperature during operation	
• min.	-20 °C
• max.	60 °C
• horizontal installation, min.	-20 °C
• horizontal installation, max.	60 °C
• vertical installation, min.	-20 °C
• vertical installation, max.	50 °C
Ambient temperature during storage/transportation	
• min.	-40 °C
• max.	70 °C
Air pressure acc. to IEC 60068-2-13	
• Storage/transport, min.	660 hPa
• Storage/transport, max.	1 080 hPa
• permissible operating height	-1000 to 2000 m
Relative humidity	
• permissible range (without condensation) at 25 °C	95 %
Vibrations	
• Vibrations	2G wall mounting, 1G DIN rail
• Operation, tested according to IEC 60068-2-6	Yes
Shock test	
• 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
Extended ambient conditions	
Pollutant concentrations	
— SO <sub>2</sub> at RH < 60% without condensation	SO <sub>2</sub> : < 0.5 ppm; H <sub>2</sub> S: < 0.1 ppm; RH < 60% condensation-free
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.	380 g
<b>last modified:</b>	15.10.2015