

SIMATIC S7-1200, CPU 1217C, compact CPU, DC/DC/DC, 2 PROFINET ports onboard I/O: 10 DI 24 V DC; 4 DI RS422/485; 6 DO 24 V DC; 0.5A; 4 DO RS422/485; 2 AI 0-10 V DC, 2 AO 0-20 mA Power supply: DC 20.4-28.8V DC, Program/data memory 150 KB



General information	
Product type designation	CPU 1217C DC/DC/DC
Firmware version	V4.5
Engineering with	
<ul style="list-style-type: none"> <li>Programming package</li> </ul>	STEP 7 V17 or higher
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)	600 mA; CPU only
Current consumption, max.	1 600 mA; CPU with all expansion modules
Inrush current, max.	12 A; at 28.8 V DC
$I^2t$	0.5 A <sup>2</sup> ·s
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	
<ul style="list-style-type: none"> <li>24 V</li> </ul>	L+ minus 4 V DC min.
Power loss	
Power loss, typ.	12 W
Memory	
Work memory	
<ul style="list-style-type: none"> <li>integrated</li> <li>expandable</li> </ul>	150 kbyte No
Load memory	
<ul style="list-style-type: none"> <li>integrated</li> <li>Plug-in (SIMATIC Memory Card), max.</li> </ul>	4 Mbyte with SIMATIC memory card
Backup	
<ul style="list-style-type: none"> <li>present</li> <li>maintenance-free</li> </ul>	Yes Yes

<ul style="list-style-type: none"> <li>without battery</li> </ul>	Yes
<b>CPU processing times</b>	
for bit operations, typ.	0.08 µs; / instruction
for word operations, typ.	1.7 µs; / instruction
for floating point arithmetic, typ.	2.3 µs; / Operation
<b>CPU-blocks</b>	
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>	
<ul style="list-style-type: none"> <li>Number, max.</li> </ul>	Limited only by RAM for code
<b>Data areas and their retentivity</b>	
Retentive data area (incl. timers, counters, flags), max.	14 kbyte
<b>Flag</b>	
<ul style="list-style-type: none"> <li>Size, max.</li> </ul>	8 kbyte; Size of bit memory address area
<b>Local data</b>	
<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
<b>Address area</b>	
<b>Process image</b>	
<ul style="list-style-type: none"> <li>Inputs, adjustable</li> <li>Outputs, adjustable</li> </ul>	1 kbyte 1 kbyte
<b>Hardware configuration</b>	
Number of modules per system, max.	3 comm. modules, 1 signal board, 8 signal modules
<b>Time of day</b>	
<b>Clock</b>	
<ul style="list-style-type: none"> <li>Hardware clock (real-time)</li> <li>Backup time</li> <li>Deviation per day, max.</li> </ul>	Yes 480 h; Typical ±60 s/month at 25 °C
<b>Digital inputs</b>	
Number of digital inputs	14; Integrated
<ul style="list-style-type: none"> <li>of which inputs usable for technological functions</li> </ul>	6; HSC (High Speed Counting)
Source/sink input	Yes
<b>Number of simultaneously controllable inputs</b>	
all mounting positions	
— up to 40 °C, max.	14
<b>Input voltage</b>	
<ul style="list-style-type: none"> <li>Rated value (DC)</li> <li>for signal "0"</li> <li>for signal "1"</li> </ul>	24 V 5 V DC at 1 mA 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 & 3 @ 30 kHz, differential: 3 @ 80 kHz & 3 @ 30 kHz
<b>Cable length</b>	
<ul style="list-style-type: none"> <li>shielded, max.</li> <li>unshielded, max.</li> </ul>	500 m; 50 m for technological functions 300 m; for technological functions: No
<b>Digital outputs</b>	
Number of digital outputs	10
<ul style="list-style-type: none"> <li>of which high-speed outputs</li> </ul>	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 µs
<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)	≥100k ohms
<b>Cable length</b>	
• shielded, max.	100 m; twisted and shielded
<b>Analog outputs</b>	
Number of analog outputs	2
<b>Output ranges, current</b>	
• 0 to 20 mA	Yes
<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 µs
<b>Analog value generation for the outputs</b>	
<b>Integration and conversion time/resolution per channel</b>	
• Resolution with overrange (bit including sign), max.	10 bit
<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
• Number of ports	2
• integrated switch	Yes
<b>Protocols</b>	
• PROFINET IO Controller	Yes
• PROFINET IO Device	Yes
• SIMATIC communication	Yes

<ul style="list-style-type: none"> <li>• Open IE communication</li> </ul>	Yes; Optionally also encrypted
<ul style="list-style-type: none"> <li>• Web server</li> </ul>	Yes
<ul style="list-style-type: none"> <li>• Media redundancy</li> </ul>	Yes
<b>PROFINET IO Controller</b>	
<ul style="list-style-type: none"> <li>• Transmission rate, max.</li> </ul>	100 Mbit/s
<b>Services</b>	
<ul style="list-style-type: none"> <li>— PG/OP communication</li> </ul>	Yes; encryption with TLS V1.3 pre-selected
<ul style="list-style-type: none"> <li>— Isochronous mode</li> </ul>	No
<ul style="list-style-type: none"> <li>— IRT</li> </ul>	No
<ul style="list-style-type: none"> <li>— PROFIenergy</li> </ul>	No
<ul style="list-style-type: none"> <li>— Prioritized startup</li> </ul>	Yes
<ul style="list-style-type: none"> <li>— Number of IO devices with prioritized startup, max.</li> </ul>	16
<ul style="list-style-type: none"> <li>— Number of connectable IO Devices, max.</li> </ul>	16
<ul style="list-style-type: none"> <li>— Number of connectable IO Devices for RT, max.</li> </ul>	16
<ul style="list-style-type: none"> <li>— of which in line, max.</li> </ul>	16
<ul style="list-style-type: none"> <li>— Activation/deactivation of IO Devices</li> </ul>	Yes
<ul style="list-style-type: none"> <li>— Number of IO Devices that can be simultaneously activated/deactivated, max.</li> </ul>	8
<ul style="list-style-type: none"> <li>— Updating time</li> </ul>	The minimum value of the update time also depends on the communication component set for PROFINET IO, on the number of IO devices and the quantity of configured user data.
<b>PROFINET IO Device</b>	
<b>Services</b>	
<ul style="list-style-type: none"> <li>— PG/OP communication</li> </ul>	Yes; encryption with TLS V1.3 pre-selected
<ul style="list-style-type: none"> <li>— Isochronous mode</li> </ul>	No
<ul style="list-style-type: none"> <li>— IRT</li> </ul>	No
<ul style="list-style-type: none"> <li>— PROFIenergy</li> </ul>	Yes
<ul style="list-style-type: none"> <li>— Shared device</li> </ul>	Yes
<ul style="list-style-type: none"> <li>— Number of IO Controllers with shared device, max.</li> </ul>	2
<b>Protocols</b>	
Supports protocol for PROFINET IO	Yes
PROFIBUS	Yes; CM 1243-5 (master) or CM 1242-5 (slave) required
OPC UA	Yes; OPC UA Server
AS-Interface	Yes; CM 1243-2 required
<b>Protocols (Ethernet)</b>	
<ul style="list-style-type: none"> <li>• TCP/IP</li> </ul>	Yes
<ul style="list-style-type: none"> <li>• DHCP</li> </ul>	No
<ul style="list-style-type: none"> <li>• SNMP</li> </ul>	Yes
<ul style="list-style-type: none"> <li>• DCP</li> </ul>	Yes
<ul style="list-style-type: none"> <li>• LLDP</li> </ul>	Yes
<b>Redundancy mode</b>	
<b>Media redundancy</b>	
<ul style="list-style-type: none"> <li>— MRP</li> </ul>	Yes; as MRP redundancy manager and/or MRP client
<ul style="list-style-type: none"> <li>— MRPD</li> </ul>	No
<b>SIMATIC communication</b>	
<ul style="list-style-type: none"> <li>• S7 routing</li> </ul>	Yes
<b>Open IE communication</b>	
<ul style="list-style-type: none"> <li>• TCP/IP <ul style="list-style-type: none"> <li>— Data length, max.</li> </ul> </li> </ul>	Yes 8 kbyte
<ul style="list-style-type: none"> <li>• ISO-on-TCP (RFC1006) <ul style="list-style-type: none"> <li>— Data length, max.</li> </ul> </li> </ul>	Yes 8 kbyte
<ul style="list-style-type: none"> <li>• UDP <ul style="list-style-type: none"> <li>— Data length, max.</li> </ul> </li> </ul>	Yes 1 472 byte
<b>Web server</b>	
<ul style="list-style-type: none"> <li>• supported</li> </ul>	Yes
<ul style="list-style-type: none"> <li>• User-defined websites</li> </ul>	Yes
<b>OPC UA</b>	

<ul style="list-style-type: none"> <li>• Runtime license required</li> <li>• OPC UA Server <ul style="list-style-type: none"> <li>— Application authentication</li> <li>— User authentication</li> <li>— Number of sessions, max.</li> <li>— Number of subscriptions per session, max.</li> <li>— Sampling interval, min.</li> <li>— Publishing interval, min.</li> <li>— Number of server methods, max.</li> <li>— Number of monitored items, max.</li> <li>— Number of server interfaces, max.</li> <li>— Number of nodes for user-defined server interfaces, max.</li> </ul> </li> </ul>	<p>Yes; "Basic" license required</p> <p>Yes; data access (read, write, subscribe), method call, runtime license required</p> <p>Available security policies: None, Basic128Rsa15, Basic256Rsa15, Basic256Sha256</p> <p>"anonymous" or by user name &amp; password</p> <p>10</p> <p>50</p> <p>100 ms</p> <p>200 ms</p> <p>20</p> <p>1 000</p> <p>2</p> <p>2 000</p>
<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> <li>• User data per job, max.</li> </ul>	<p>Yes</p> <p>Yes</p> <p>Yes</p> <p>See online help (S7 communication, user data size)</p>
<b>Number of connections</b>	
<ul style="list-style-type: none"> <li>• overall</li> </ul>	PG Connections: 4 reserved / 4 max; HMI Connections: 12 reserved / 18 max; S7 Connections: 8 reserved / 14 max; Open User Connections: 8 reserved / 14 max; Web Connections: 2 reserved / 30 max; OPC UA Connections: 0 reserved / 10 max; Total Connections: 34 reserved / 64 max
<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>	
<ul style="list-style-type: none"> <li>• present</li> </ul>	Yes
<b>Traces</b>	
<ul style="list-style-type: none"> <li>• Number of configurable Traces</li> <li>• Memory size per trace, max.</li> </ul>	<p>2</p> <p>512 kbyte</p>
<b>Interrupts/diagnostics/status information</b>	
<b>Diagnostics indication LED</b>	
<ul style="list-style-type: none"> <li>• RUN/STOP LED</li> <li>• ERROR LED</li> <li>• MAINT LED</li> </ul>	<p>Yes</p> <p>Yes</p> <p>Yes</p>
<b>Integrated Functions</b>	
<b>Counter</b>	
<ul style="list-style-type: none"> <li>• Number of counters</li> <li>• Counting frequency, max.</li> </ul>	<p>6</p> <p>1 MHz</p>
<b>Frequency measurement</b>	
controlled positioning	
Number of position-controlled positioning axes, max.	
Number of positioning axes via pulse-direction interface	
PID controller	
Number of alarm inputs	
Number of pulse outputs	
Limit frequency (pulse)	
4	
4	
1 MHz	
<b>Potential separation</b>	
Potential separation digital inputs	

<ul style="list-style-type: none"> <li>• Potential separation digital inputs</li> </ul>	No
<ul style="list-style-type: none"> <li>• between the channels, in groups of</li> </ul>	1
<b>Potential separation digital outputs</b>	
<ul style="list-style-type: none"> <li>• Potential separation digital outputs</li> </ul>	Yes
<ul style="list-style-type: none"> <li>• between the channels</li> </ul>	No
<ul style="list-style-type: none"> <li>• between the channels, in groups of</li> </ul>	1
<b>EMC</b>	
<b>Interference immunity against discharge of static electricity</b>	
<ul style="list-style-type: none"> <li>• Interference immunity against discharge of static electricity acc. to IEC 61000-4-2</li> </ul>	Yes
<ul style="list-style-type: none"> <li>— Test voltage at air discharge</li> </ul>	8 kV
<ul style="list-style-type: none"> <li>— Test voltage at contact discharge</li> </ul>	6 kV
<b>Interference immunity to cable-borne interference</b>	
<ul style="list-style-type: none"> <li>• Interference immunity on supply lines acc. to IEC 61000-4-4</li> </ul>	Yes
<ul style="list-style-type: none"> <li>• Interference immunity on signal cables acc. to IEC 61000-4-4</li> </ul>	Yes
<b>Interference immunity against voltage surge</b>	
<ul style="list-style-type: none"> <li>• Interference immunity on supply lines acc. to IEC 61000-4-5</li> </ul>	Yes
<b>Interference immunity against conducted variable disturbance induced by high-frequency fields</b>	
<ul style="list-style-type: none"> <li>• Interference immunity against high-frequency radiation acc. to IEC 61000-4-6</li> </ul>	Yes
<b>Emission of radio interference acc. to EN 55 011</b>	
<ul style="list-style-type: none"> <li>• Limit class A, for use in industrial areas</li> </ul>	Yes; Group 1
<ul style="list-style-type: none"> <li>• Limit class B, for use in residential areas</li> </ul>	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>Standards, approvals, certificates</b>	
CE mark	Yes
UL approval	Yes
cULus	Yes
FM approval	Yes
RCM (formerly C-TICK)	Yes
KC approval	Yes
Marine approval	Yes
<b>Ambient conditions</b>	
<b>Free fall</b>	
<ul style="list-style-type: none"> <li>• Fall height, max.</li> </ul>	0.3 m; five times, in product package
<b>Ambient temperature during operation</b>	
<ul style="list-style-type: none"> <li>• min.</li> </ul>	-20 °C
<ul style="list-style-type: none"> <li>• max.</li> </ul>	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
<ul style="list-style-type: none"> <li>• horizontal installation, min.</li> </ul>	-20 °C
<ul style="list-style-type: none"> <li>• horizontal installation, max.</li> </ul>	60 °C
<ul style="list-style-type: none"> <li>• vertical installation, min.</li> </ul>	-20 °C
<ul style="list-style-type: none"> <li>• vertical installation, max.</li> </ul>	50 °C
<b>Ambient temperature during storage/transportation</b>	
<ul style="list-style-type: none"> <li>• min.</li> </ul>	-40 °C
<ul style="list-style-type: none"> <li>• max.</li> </ul>	70 °C
<b>Air pressure acc. to IEC 60068-2-13</b>	
<ul style="list-style-type: none"> <li>• Operation, min.</li> </ul>	795 hPa
<ul style="list-style-type: none"> <li>• Operation, max.</li> </ul>	1 080 hPa
<ul style="list-style-type: none"> <li>• Storage/transport, min.</li> </ul>	660 hPa
<ul style="list-style-type: none"> <li>• Storage/transport, max.</li> </ul>	1 080 hPa
<b>Altitude during operation relating to sea level</b>	
<ul style="list-style-type: none"> <li>• Installation altitude, min.</li> </ul>	-1 000 m
<ul style="list-style-type: none"> <li>• Installation altitude, max.</li> </ul>	5 000 m; Restrictions for installation altitudes > 2 000 m, see manual

<b>Relative humidity</b>	
• Operation, max.	95 %; no condensation
<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>Pollutant concentrations</b>	
• 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
<b>Configuration</b>	
<b>Programming</b>	
Programming language	
— LAD	Yes
— FBD	Yes
— SCL	Yes
<b>Know-how protection</b>	
• User program protection/password protection	Yes
• Copy protection	Yes
• Block protection	Yes
<b>Access protection</b>	
• protection of confidential configuration data	Yes
• Protection level: Write protection	Yes
• Protection level: Read/write protection	Yes
• Protection level: Complete protection	Yes
<b>Cycle time monitoring</b>	
• adjustable	Yes
<b>Dimensions</b>	
Width	150 mm
Height	100 mm
Depth	75 mm
<b>Weights</b>	
Weight, approx.	530 g

**last modified:** 4/12/2021 