

\*\*\* SPARE PART\*\*\* SIMATIC S7-1200, CPU 1212C, COMPACT CPU, DC/DC/RLY, ONBOARD I/O: 8 DI 24V DC; 6 DO RELAY 2A; 2 AI 0 - 10V DC, POWER SUPPLY: DC 20.4 - 28.8 V DC, PROGRAM/DATA MEMORY: 25 KB



### General information

Product type designation	CPU 1212C DC/DC/Relay
Engineering with	
<ul style="list-style-type: none"> <li>Programming package</li> </ul>	STEP 7 V10.5 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
Load voltage L+	
<ul style="list-style-type: none"> <li>Rated value (DC)</li> </ul>	24 V
<ul style="list-style-type: none"> <li>permissible range, lower limit (DC)</li> </ul>	5 V
<ul style="list-style-type: none"> <li>permissible range, upper limit (DC)</li> </ul>	250 V

### Input current

Current consumption (rated value)	175 mA; Typical
Current consumption, max.	1.2 A; 24 V DC
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>	Permissible range: 20.4V to 28.8V
Power loss	
Power loss, typ.	9 W
Memory	
Work memory	
<ul style="list-style-type: none"> <li>• integrated</li> </ul>	25 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>	24 Mbyte; with SIMATIC memory card
Backup	
<ul style="list-style-type: none"> <li>• present</li> </ul>	Yes; Entire project maintenance-free in the integral EEPROM
<ul style="list-style-type: none"> <li>• without battery</li> </ul>	Yes
CPU processing times	
for bit operations, typ.	0.1 $\mu$ s; / Operation
for word operations, typ.	12 $\mu$ s; / Operation
for floating point arithmetic, typ.	18 $\mu$ s; / Operation
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 (incl. timers, counters, flags), max.	2 048 byte
Flag	
<ul style="list-style-type: none"> <li>• Number, max.</li> </ul>	4 kbyte; Size of bit memory address area
Address area	
I/O address area	
<ul style="list-style-type: none"> <li>• Inputs</li> </ul>	1 024 byte
<ul style="list-style-type: none"> <li>• Outputs</li> </ul>	1 024 byte
Process image	
<ul style="list-style-type: none"> <li>• Inputs, adjustable</li> </ul>	1 kbyte
<ul style="list-style-type: none"> <li>• Outputs, adjustable</li> </ul>	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 240 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

### 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 current

- for signal "1", typ. 1 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 at 100 kHz & 1 at 30 kHz, differential: 3 at 80 kHz & 1 at 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; Relays

Short-circuit protection No; to be provided externally

### Switching capacity of the outputs

- with resistive load, max. 2 A
- on lamp load, max. 30 W with DC, 200 W with AC

### Output delay with resistive load

- "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	6
• 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
<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>Cable length</b>	
• shielded, max.	100 m; shielded, twisted pair
<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>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>	
• PROFINET IO Controller	Yes
<b>Protocols</b>	

Supports protocol for PROFINET IO	No
PROFIBUS	No
AS-Interface	No
<b>Protocols (Ethernet)</b>	
• TCP/IP	Yes
<b>Further protocols</b>	
• MODBUS	No

<b>Communication functions</b>	
<b>S7 communication</b>	
• supported	Yes
• as server	Yes
<b>Open IE communication</b>	
• TCP/IP	Yes
• ISO-on-TCP (RFC1006)	Yes
<b>Web server</b>	
• supported	Yes
• User-defined websites	Yes
<b>Number of connections</b>	
• overall	15; 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>Integrated Functions</b>	
Number of counters	4
Counting frequency (counter) max.	100 kHz
Frequency meter	Yes
controlled positioning	Yes
PID controller	Yes
Number of alarm inputs	4

<b>Potential separation</b>	
<b>Potential separation digital inputs</b>	
• Potential separation digital inputs	No
• 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

Permissible potential difference	
between different circuits	500 V DC between 24 V DC and 5 V DC
EMC	
Interference immunity against discharge of static electricity	
<ul style="list-style-type: none"> <li>• Interference immunity against discharge of static electricity acc. to IEC 61000-4-2</li> </ul>	Yes
— Test voltage at air discharge	8 kV
— Test voltage at contact discharge	6 kV
Interference immunity to cable-borne interference	
<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
Interference immunity against voltage surge	
<ul style="list-style-type: none"> <li>• on the supply lines acc. to IEC 61000-4-5</li> </ul>	Yes
Interference immunity against conducted variable disturbance induced by high-frequency fields	
<ul style="list-style-type: none"> <li>• Interference immunity against high-frequency radiation acc. to IEC 61000-4-6</li> </ul>	Yes
Emission of radio interference acc. to EN 55 011	
<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
Degree and class of protection	
Degree of protection acc. to EN 60529	
<ul style="list-style-type: none"> <li>• IP20</li> </ul>	Yes
Standards, approvals, certificates	
CE mark	Yes
cULus	Yes
FM approval	Yes
RCM (formerly C-TICK)	Yes
Ambient conditions	
Free fall	
<ul style="list-style-type: none"> <li>• Fall height, max.</li> </ul>	0.3 m; five times, in product package
Ambient temperature during operation	
<ul style="list-style-type: none"> <li>• min.</li> </ul>	0 °C
<ul style="list-style-type: none"> <li>• max.</li> </ul>	55 °C
<ul style="list-style-type: none"> <li>• horizontal installation, min.</li> </ul>	0 °C
<ul style="list-style-type: none"> <li>• horizontal installation, max.</li> </ul>	55 °C
<ul style="list-style-type: none"> <li>• vertical installation, min.</li> </ul>	0 °C
<ul style="list-style-type: none"> <li>• vertical installation, max.</li> </ul>	45 °C
<ul style="list-style-type: none"> <li>• permissible temperature change</li> </ul>	5°C to 55°C, 3°C / minute

<b>Ambient temperature during storage/transportation</b>	
• min.	-40 °C
• max.	70 °C
<b>Air pressure acc. to IEC 60068-2-13</b>	
• Operation, min.	795 hPa
• Operation, max.	1 080 hPa
• Storage/transport, min.	660 hPa
• Storage/transport, max.	1 080 hPa
• permissible operating height	-1000 to 2000 m
<b>Relative humidity</b>	
• permissible range (without condensation) at 25 °C	95 %
• Operation, max.	95 %; no condensation
<b>Vibrations</b>	
• Vibrations	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 test</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>Extended ambient conditions</b>	
<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>	
<b>Programming language</b>	
— LAD	Yes
— FBD	Yes
— SCL	Yes
<b>Cycle time monitoring</b>	
• adjustable	Yes
<b>Dimensions</b>	
Width	90 mm
Height	100 mm
Depth	75 mm
<b>Weights</b>	
Weight, approx.	385 g
<b>last modified:</b>	03/16/2017