

\*\*\*Spare part\*\*\* SIMATIC S7-1200, CPU 1212C, compact CPU, AC/DC/relay, onboard I/O: 8 DI 24 V DC; 6 DO relay 2 A; 2 AI 0-10 V DC, Power supply: AC 85-264 V AC at 47-63 Hz, Program/data memory 25 KB



General information	
Product type designation	CPU 1212C AC/DC/relay
Engineering with	
• Programming package	STEP 7 V10.5 or higher
Supply voltage	
Rated value (AC)	
• 120 V AC	Yes
• 230 V AC	Yes
permissible range, lower limit (AC)	85 V
permissible range, upper limit (AC)	264 V
Line frequency	
• permissible range, lower limit	47 Hz
• permissible range, upper limit	63 Hz
Load voltage L+	
• Rated value (DC)	24 V
• permissible range, lower limit (DC)	5 V
• permissible range, upper limit (DC)	250 V
Input current	

Current consumption (rated value)	80 mA at 120 V AC; 40 mA at 240 V AC
Current consumption, max.	240 mA at 120 V AC; 120 mA at 240 V AC
Inrush current, max.	20 A; at 264 V
<b>Output current</b>	
for backplane bus (5 V DC), max.	1 000 mA; Max. 5 V DC for SM and CM
<b>Encoder supply</b>	
24 V encoder supply	
• 24 V	Permissible range: 20.4V to 28.8V
<b>Power loss</b>	
Power loss, typ.	11 W
<b>Memory</b>	
<b>Work memory</b>	
• integrated	25 kbyte
• expandable	No
<b>Load memory</b>	
• integrated	1 Mbyte
• Plug-in (SIMATIC Memory Card), max.	24 Mbyte; with SIMATIC memory card
<b>Backup</b>	
• present	Yes; Entire project maintenance-free in the integral EEPROM
• without battery	Yes
<b>CPU processing times</b>	
for bit operations, typ.	0.1 µs; / Operation
for word operations, typ.	12 µs; / Operation
for floating point arithmetic, typ.	18 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>	
• Number, max.	Limited only by RAM for code
<b>Data areas and their retentivity</b>	
Retentive data area (incl. timers, counters, flags), max.	2 048 byte
<b>Flag</b>	
• Number, max.	4 kbyte; Size of bit memory address area
<b>Address area</b>	
<b>I/O address area</b>	
• Inputs	1 024 byte
• Outputs	1 024 byte
<b>Process image</b>	

- Inputs, adjustable
- Outputs, adjustable

1 kbyte

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.  $\pm 60$  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)
- for signal "0"
- for signal "1"

24 V

5 V DC at 1 mA

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.
- unshielded, max.

500 m; 50 m for technological functions

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.
- on lamp load, max.

2 A

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.
Switching frequency	
• of the pulse outputs, with resistive load, max.	1 Hz
Relay outputs	
• Number of relay outputs	6
• Number of operating cycles, max.	mechanically 10 million, at rated load voltage 100 000
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	
Cable length	
• shielded, max.	100 m; shielded, twisted pair
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
Physics	Ethernet
Isolated	Yes
automatic detection of transmission rate	Yes
Autonegotiation	Yes
Autocrossing	Yes
Functionality	
• 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>Open IE communication</b>	
• TCP/IP	Yes
• ISO-on-TCP (RFC1006)	Yes
<b>Web server</b>	
• User-defined websites	Yes
<b>Further protocols</b>	
• MODBUS	No
<b>Communication functions</b>	
<b>S7 communication</b>	
• supported	Yes
• as server	Yes
<b>Web server</b>	
• supported	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 measurement	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	Yes; Relays

- between the channels
- between the channels, in groups of

No

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## 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

- Interference immunity against discharge of static electricity acc. to IEC 61000-4-2
  - 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

- on the 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

Degree of protection acc. to EN 60529

- IP20 Yes

## Standards, approvals, certificates

- CE mark Yes
- cULus Yes
- FM approval Yes
- RCM (formerly C-TICK) Yes

## Ambient conditions

### Free fall

- Fall height, max. 0.3 m; five times, in product package

### Ambient temperature during operation

- min. 0 °C
- max. 55 °C
- horizontal installation, min. 0 °C
- horizontal installation, max. 55 °C
- vertical installation, min. 0 °C

• vertical installation, max.	45 °C
• permissible temperature change	5°C to 55°C, 3°C / minute
Ambient temperature during storage/transportation	
• min.	-40 °C
• max.	70 °C
Air pressure acc. to IEC 60068-2-13	
• Operation, min.	795 hPa
• Operation, max.	1 080 hPa
• Storage/transport, min.	660 hPa
• Storage/transport, max.	1 080 hPa
Altitude during operation relating to sea level	
• Installation altitude, min.	-1 000 m
• Installation altitude, max.	2 000 m
Relative humidity	
• Operation, max.	95 %; no condensation
Vibrations	
• 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
Shock testing	
• 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
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.	425 g
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