



SIMATIC S7-1200, CPU 1215C, compact CPU, DC/DC/relay, 2 PROFINET ports, onboard I/O: 14 DI 24 V DC; 10 DO relay 2 A, 2 AI 0-10 V DC, 2 AO 0-20 mA DC, Power supply: DC 20.4-28.8 V DC, Program/data memory 125 KB

General information	
Product type designation	CPU 1215C DC/DC/relay
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)	500 mA; CPU only
Current consumption, max.	1 500 mA; CPU with all expansion modules
Inrush current, max.	12 A; at 28.8 V DC
$I^2t$	0.8 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>	125 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> <li>without battery</li> </ul>	Yes Yes Yes

CPU processing times	
for bit operations, typ.	0.08 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	
• Number, max.	Limited only by RAM for code
Data areas and their retentivity	
Retentive data area (incl. timers, counters, flags), max.	14 kbyte
Flag	
• Size, max.	8 kbyte; Size of bit memory address area
Local data	
• per priority class, max.	16 kbyte; Priority class 1 (program cycle): 16 KB, priority class 2 to 26: 6 KB
Address area	
Process image	
• Inputs, adjustable	1 kbyte
• Outputs, adjustable	1 kbyte
Hardware configuration	
Number of modules per system, max.	3 comm. modules, 1 signal board, 8 signal modules
Time of day	
Clock	
• Hardware clock (real-time)	Yes
• Backup time	480 h; Typical
• Deviation per day, max.	±60 s/month at 25 °C
Digital inputs	
Number of digital inputs	14; Integrated
• of which inputs usable for technological functions	6; HSC (High Speed Counting)
Source/sink input	Yes
Number of simultaneously controllable inputs	
all mounting positions	
— up to 40 °C, max.	14
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 delay (for rated value of input voltage)	
for standard inputs	
— parameterizable	Yes; 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
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	10; Relays
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>Relay outputs</b>	
• Number of relay outputs	10
• 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 — Input resistance (0 to 10 V)	Yes ≥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
• Open IE communication	Yes; Optionally also encrypted
• Web server	Yes
• Media redundancy	Yes
<b>PROFINET IO Controller</b>	
• Transmission rate, max.	100 Mbit/s
<b>Services</b>	
— PG/OP communication	Yes; encryption with TLS V1.3 pre-selected
— Isochronous mode	No
— IRT	No
— PROFIenergy	No
— Prioritized startup	Yes
— Number of IO devices with prioritized startup, max.	16
— Number of connectable IO Devices, max.	16

- Number of connectable IO Devices for RT, max.
- of which in line, max.
- Activation/deactivation of IO Devices
- Number of IO Devices that can be simultaneously activated/deactivated, max.
- Updating time

16

16

Yes

8

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.

## PROFINET IO Device

### Services

- PG/OP communication
- Isochronous mode
- IRT
- PROFIenergy
- Shared device
- Number of IO Controllers with shared device, max.

Yes; encryption with TLS V1.3 pre-selected

No

No

Yes

Yes

2

### Protocols

Supports protocol for PROFINET IO

Yes

PROFIsafe

No

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

### Protocols (Ethernet)

- TCP/IP
- DHCP
- SNMP
- DCP
- LLDP

Yes

No

Yes

Yes

Yes

### Redundancy mode

#### Media redundancy

- MRP

Yes; as MRP redundancy manager and/or MRP client

### Open IE communication

- TCP/IP
  - Data length, max.
- ISO-on-TCP (RFC1006)
  - Data length, max.
- UDP
  - Data length, max.

Yes

8 kbyte

Yes

8 kbyte

Yes

1 472 byte

### Web server

- supported
- User-defined websites

Yes

Yes

### OPC UA

- Runtime license required
- OPC UA Server
  - Application authentication
  - User authentication
  - Number of sessions, max.
  - Number of subscriptions per session, max.
  - Sampling interval, min.
  - Publishing interval, min.
  - Number of server methods, max.
  - Number of monitored items, max.
  - Number of server interfaces, max.
  - Number of nodes for user-defined server interfaces, max.

Yes; "Basic" license required

Yes; data access (read, write, subscribe), method call, runtime license required

Available security policies: None, Basic128Rsa15, Basic256Rsa15, Basic256Sha256

"anonymous" or by user name &amp; password

10

5

100 ms

200 ms

20

1 000

2

2 000

### Further protocols

- MODBUS

Yes

## communication functions / header

<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>	
Frequency measurement	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>	
<ul style="list-style-type: none"> <li>Potential separation digital inputs</li> <li>between the channels, in groups of</li> </ul>	<p>500V AC for 1 minute</p> <p>1</p>
<b>Potential separation digital outputs</b>	
<ul style="list-style-type: none"> <li>Potential separation digital outputs</li> <li>between the channels</li> <li>between the channels, in groups of</li> </ul>	<p>Relays</p> <p>No</p> <p>2</p>
<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 <ul style="list-style-type: none"> <li>Test voltage at air discharge</li> <li>Test voltage at contact discharge</li> </ul> </li> </ul>	<p>Yes</p> <p>8 kV</p> <p>6 kV</p>
<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> <li>Interference immunity on signal cables acc. to IEC 61000-4-4</li> </ul>	<p>Yes</p> <p>Yes</p>
<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

- 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

IP degree of protection IP20

### Standards, approvals, certificates

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

### Ambient conditions

#### Free fall

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

#### Ambient temperature during operation

- min. -20 °C
- max. 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
- 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

- 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. 5 000 m; Restrictions for installation altitudes > 2 000 m, see manual

#### 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 / header

#### configuration / programming / header

Programming language	
— LAD	Yes
— FBD	Yes
— SCL	Yes

#### Know-how protection

- User program protection/password protection Yes
- Copy protection Yes
- Block protection Yes

#### Access protection

- protection of confidential configuration data Yes
- Protection level: Write protection Yes
- Protection level: Read/write protection Yes
- Protection level: Complete protection Yes

programming / cycle time monitoring / header	
• adjustable	Yes
<b>Dimensions</b>	
Width	130 mm
Height	100 mm
Depth	75 mm
<b>Weights</b>	
Weight, approx.	585 g
<b>last modified:</b>	7/19/2022 