

SIMATIC S7-1200, CPU 1217C, COMPACT CPU, DC/DC/DC, 2 PROFINET PORT ONBOARD I/O: 14 DI (10 DI 24VDC / 4 DI 1.5V DC DIFFERENTIAL); 10 DQ (6 DQ 24VDC; 0,5A / 4 DQ 1.5V DC DIFFERENTIAL); 2 AI 0- 10V DC, 2 AQ 0- 20MA; POWER SUPPLY: DC 20.4 - 28.8 V DC, PROGRAM/DATA MEMORY: 125 KB



### General information

#### Engineering with

- Programming package STEP 7 V13 SP1 or higher

### Display

- with display No

### Supply voltage

- Rated value (DC)
  - 24 V DC Yes
- permissible range, lower limit (DC) 20.4 V
- permissible range, upper limit (DC) 28.8 V

#### Load voltage L+

- Rated value (DC) 24 V

### Input current

- Current consumption (rated value) 600 mA
- Current consumption, max. 1 600 mA
- Inrush current, max. 12 A; at 28.8 V DC

### Encoder supply

- 24 V encoder supply
  - 24 V L+ minus 4 V DC min.

### Power losses

- Power loss, typ. 12 W

### Memory

- Type of memory EEPROM

<b>Work memory</b>	
• Integrated	150 kbyte
• expandable	No
<b>Load memory</b>	
• Integrated	4 Mbyte
• Plug-in (SIMATIC Memory Card), max.	with SIMATIC memory card
<b>Backup</b>	
• present	Yes; maintenance-free
• without battery	Yes
<b>CPU processing times</b>	
for bit operations, typ.	0.085 µs; / Operation
for word operations, typ.	1.5 µs; / Operation
for floating point arithmetic, typ.	2.5 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 in total (incl. times, counters, flags), max.	10 kbyte
<b>Flag</b>	
• Number, max.	8 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	1 kbyte
• Outputs, adjustable	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>	
• Hardware clock (real-time clock)	Yes
• Deviation per day, max.	+/- 60 s/month at 25 °C
• Backup time	480 h; Typical
<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)
integrated channels (DI)	14
m/p-reading	Yes
<b>Number of simultaneously controllable inputs</b>	
all mounting positions	
— up to 40 °C, max.	14
<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	Yes
<b>Cable length</b>	
<ul style="list-style-type: none"> <li>• shielded, max.</li> </ul>	500 m; 50 m for technological functions
<ul style="list-style-type: none"> <li>• Unshielded, max.</li> </ul>	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
integrated channels (DO)	10
short-circuit protection	No; to be provided externally
<b>Output delay with resistive load</b>	
<ul style="list-style-type: none"> <li>• "0" to "1", max.</li> </ul>	1 µs
<ul style="list-style-type: none"> <li>• "1" to "0", max.</li> </ul>	5 µs
<b>Relay outputs</b>	
<ul style="list-style-type: none"> <li>• Number of relay outputs, integrated</li> </ul>	0
<b>Analog inputs</b>	
Number of analog inputs	2
Integrated channels (AI)	2; 0 to 10 V
<b>Input ranges</b>	
<ul style="list-style-type: none"> <li>• Voltage</li> </ul>	Yes
<b>Input ranges (rated values), voltages</b>	
<ul style="list-style-type: none"> <li>• 0 to +10 V</li> </ul>	Yes
<ul style="list-style-type: none"> <li>• Input resistance (0 to 10 V)</li> </ul>	≥100k ohms
<b>Cable length</b>	
<ul style="list-style-type: none"> <li>• shielded, max.</li> </ul>	100 m; twisted and shielded
<b>Analog outputs</b>	

Number of analog outputs	2
Integrated channels (AO)	2; 0 to 20 mA
<b>Output ranges, current</b>	
• 0 to 20 mA	Yes
<b>Cable length</b>	
• shielded, max.	100 m; shielded, twisted pair
<b>Analog value creation</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>1st interface</b>	
Interface type	PROFINET
Physics	Ethernet
Isolated	Yes
Automatic detection of transmission speed	Yes
Autonegotiation	Yes
Autocrossing	Yes
<b>Functionality</b>	
• PROFINET IO Device	Yes
• PROFINET IO Controller	Yes
<b>PROFINET IO Controller</b>	
• Transmission rate, max.	100 Mbit/s
• Number of connectable IO devices, max.	16
• Prioritized startup	
— Number of IO Devices, max.	16
<b>PROFINET IO Device</b>	
<b>Services</b>	
— Shared device	Yes
— Number of IO controllers with shared device, max.	2
<b>Communication functions</b>	
<b>S7 communication</b>	
• supported	Yes
• as server	Yes
• As client	Yes
<b>Open IE communication</b>	

• TCP/IP	Yes
• ISO-on-TCP (RFC1006)	Yes
• UDP	Yes
<b>Web server</b>	
• supported	Yes
• User-defined websites	Yes
<b>Number of connections</b>	
• overall	16; 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>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	6
Counter frequency (counter) max.	1 MHz
Frequency meter	Yes
controlled positioning	Yes
PID controller	Yes
Number of alarm inputs	4
Number of pulse outputs	4
Limit frequency (pulse)	1 MHz
<b>Galvanic isolation</b>	
<b>Galvanic isolation digital inputs</b>	
• Galvanic isolation digital inputs	No
• between the channels, in groups of	1
<b>Galvanic isolation digital outputs</b>	
• between the channels	No
• between the channels, in groups of	1
<b>Permissible potential difference</b>	
between different circuits	500 V DC between 24 V DC and 5 V DC
<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 lines acc. to IEC 61000-4-4	Yes
<b>Surge immunity</b>	
• on the supply lines acc. to IEC 61000-4-5	Yes
<b>Immunity against conducted interference 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
<b>Degree and class of protection</b>	
Degree of protection to EN 60529	
• IP20	Yes
<b>Standards, approvals, certificates</b>	
CE mark	Yes
UL approval	Yes
cULus	Yes
RCM (formerly C-TICK)	Yes
FM approval	Yes
<b>Marine approval</b>	
• Marine approval	Yes
<b>Ambient conditions</b>	
Free fall	
• Drop height, max. (in packaging)	0.3 m; five times, in dispatch package
<b>Ambient temperature in operation</b>	
• 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
<b>Storage/transport temperature</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>	
• Operation, max.	95 %; no condensation
• Permissible range (without condensation) at 25 °C	95 %
<b>Vibrations</b>	
• Vibrations	2G wall mounting, 1G DIN rail
• Operation, checked according to IEC 60068-2-6	Yes
<b>Shock test</b>	
• checked 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>	
— SO2 at RH < 60% without condensation	SO2: < 0.5 ppm; H2S: < 0.1 ppm; RH < 60% condensation-free
<b>programming</b>	
<b>Programming language</b>	
— LAD	Yes
— FBD	Yes
— SCL	Yes
<b>Cycle time monitoring</b>	
• can be set	Yes
<b>Dimensions</b>	
Width	150 mm
Height	100 mm
Depth	75 mm
<b>Weights</b>	
Weight, approx.	500 g
<b>last modified:</b>	12.03.2015

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