



SIMATIC S7-1200, CPU 1212C, COMPACT CPU, AC/DC/RLY,  
ONBOARD I/O: 8 DI 24V DC; 6 DO RELAY 2A; 2 AI 0 - 10V DC,  
POWER SUPPLY: AC 85 - 264 V AC AT 47 - 63 HZ,  
PROGRAM/DATA MEMORY: 75 KB

### General information

#### Engineering with

- Programming package STEP 7 V13 SP1 or higher

### Display

with display No

### 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 frequency range, lower limit 47 Hz
- permissible frequency range, upper limit 63 Hz

### 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

### Output current

Current output to backplane bus (DC 5 V), max. 1 000 mA; Max. 5 V DC for SM and CM

### Power losses

Power loss, typ. 11 W

### Memory

Type of memory	EEPROM
<b>Work memory</b>	
<ul style="list-style-type: none"> <li>• Integrated</li> </ul>	75 kbyte
<ul style="list-style-type: none"> <li>• expandable</li> </ul>	No
<b>Load memory</b>	
<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>	with SIMATIC memory card
<b>Backup</b>	
<ul style="list-style-type: none"> <li>• present</li> </ul>	Yes; maintenance-free
<ul style="list-style-type: none"> <li>• without battery</li> </ul>	Yes
<b>CPU processing times</b>	
for bit operations, typ.	0.085 µs; / instruction
for word operations, typ.	1.7 µs; / instruction
for floating point arithmetic, typ.	2.5 µs; / instruction
<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 in total (incl. times, counters, flags), max.	10 kbyte
<b>Flag</b>	
<ul style="list-style-type: none"> <li>• Number, max.</li> </ul>	4 kbyte; Size of bit memory address area
<b>Process image</b>	
<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
<b>Hardware configuration</b>	
Number of modules per system, max.	3 comm. modules, 1 signal board, 2 signal modules
<b>Time of day</b>	
<b>Clock</b>	
<ul style="list-style-type: none"> <li>• Hardware clock (real-time clock)</li> </ul>	Yes
<ul style="list-style-type: none"> <li>• Deviation per day, max.</li> </ul>	60 s/month at 25 °C
<ul style="list-style-type: none"> <li>• Backup time</li> </ul>	480 h; Typical
<b>Digital inputs</b>	
Number of digital inputs	8; Integrated
<ul style="list-style-type: none"> <li>• of which, inputs usable for technological functions</li> </ul>	4; HSC (High Speed Counting)
integrated channels (DI)	8
m/p-reading	Yes

<b>Number of simultaneously controllable inputs</b>	
all mounting positions	
— up to 40 °C, max.	8
<b>Input voltage</b>	
• Rated value (DC)	24 V
• for signal "0"	5 V DC at 1 mA
• for signal "1"	15 VDC at 2.5 mA
<b>Input current</b>	
• for signal "1", typ.	1 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 counter/technological functions	
— Parameterizable	Yes; Single phase : 3 at 100 kHz & 3 at 30 kHz, differential: 3 at 80 kHz & 3 at 30 kHz
<b>Cable length</b>	
• shielded, max.	500 m; 50 m for technological functions
• Unshielded, max.	300 m; For technological functions: No
<b>Digital outputs</b>	
Number of digital outputs	6; Relays
integrated channels (DO)	6
short-circuit protection	No; to be provided externally
<b>Switching capacity of the outputs</b>	
• with resistive load, max.	2 A
• on lamp load, max.	30 W with DC, 200 W with AC
<b>Output delay with resistive load</b>	
• "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, integrated	6
• 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

Analog inputs	
Number of analog inputs	2
Integrated channels (AI)	2; 0 to 10 V
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 value creation	
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
1st interface	
Interface type	PROFINET
Physics	Ethernet
Isolated	Yes
Automatic detection of transmission speed	Yes
Autonegotiation	Yes
Autocrossing	Yes
Functionality	
• PROFINET IO Device	Yes
• PROFINET IO Controller	Yes
PROFINET IO Controller	
• Transmission rate, max.	100 Mbit/s
• Number of connectable IO devices, max.	16
• Prioritized startup	
— Number of IO Devices, max.	16
PROFINET IO Device	
Services	
— Shared device	Yes
— Number of IO controllers with shared device, max.	2
Communication functions	
S7 communication	

• 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	4
Counter frequency (counter) max.	100 kHz
Frequency meter	Yes
controlled positioning	Yes
PID controller	Yes
Number of alarm inputs	4
<b>Galvanic isolation</b>	
<b>Galvanic isolation digital inputs</b>	
• Galvanic isolation digital inputs	500V AC for 1 minute
• between the channels, in groups of	1
<b>Galvanic isolation digital outputs</b>	
• Galvanic isolation digital outputs	Relays
• between the channels	No
• between the channels, in groups of	2
<b>Permissible potential difference</b>	
between different circuits	500 V DC between 24 V DC and 5 V DC

## EMC

<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 lines acc. to IEC 61000-4-4</li> </ul>	<p>Yes</p> <p>Yes</p>
<b>Surge immunity</b>	
<ul style="list-style-type: none"> <li>• on the supply lines acc. to IEC 61000-4-5</li> </ul>	<p>Yes</p>
<b>Immunity against conducted interference 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>	<p>Yes</p>
<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> <li>• Limit class B, for use in residential areas</li> </ul>	<p>Yes; Group 1</p> <p>Yes; When appropriate measures are used to ensure compliance with the limits for Class B according to EN 55011</p>
<b>Degree and class of protection</b>	
Degree of protection to EN 60529	
<ul style="list-style-type: none"> <li>• IP20</li> </ul>	<p>Yes</p>
<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>	
<ul style="list-style-type: none"> <li>• Marine approval</li> </ul>	<p>Yes</p>
<b>Ambient conditions</b>	
<b>Free fall</b>	
<ul style="list-style-type: none"> <li>• Drop height, max. (in packaging)</li> </ul>	<p>0.3 m; five times, in dispatch package</p>
<b>Ambient temperature in operation</b>	
<ul style="list-style-type: none"> <li>• Min.</li> <li>• max.</li> </ul>	<p>-20 °C</p> <p>60 °C; Number of simultaneously activated inputs or outputs 4 or 3 (no adjacent points) at 60 °C horizontal or 50 °C vertical, 8 or 6 at 55 °C horizontal or 45 °C vertical</p>
<ul style="list-style-type: none"> <li>• horizontal installation, min.</li> <li>• horizontal installation, max.</li> <li>• vertical installation, min.</li> </ul>	<p>-20 °C</p> <p>60 °C</p> <p>-20 °C</p>

• 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>	
• 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>	
— 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>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	90 mm
Height	100 mm
Depth	75 mm
<b>Weights</b>	
Weight, approx.	425 g
<b>last modified:</b>	12.03.2015