

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: 75 KB



General information	
Product type designation	CPU 1212C DC/DC/Relay
Firmware version	V4.1
Engineering with	
<ul style="list-style-type: none"> Programming package 	STEP 7 V13 SP1 or higher
Display	
with display	No
Supply voltage	
Rated value (DC)	
<ul style="list-style-type: none"> 24 V DC 	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"> Rated value (DC) 	24 V
<ul style="list-style-type: none"> permissible range, lower limit (DC) 	5 V
<ul style="list-style-type: none"> permissible range, upper limit (DC) 	250 V

Input current	
Current consumption (rated value)	400 mA; CPU only
Current consumption, max.	1 200 mA; CPU with all expansion modules
Inrush current, max.	12 A; at 28.8 V
Encoder supply	
24 V encoder supply	
• 24 V	L+ minus 4 V DC min.
Output current	
for backplane bus (5 V DC), max.	1 000 mA; Max. 5 V DC for SM and CM
Power loss	
Power loss, typ.	9 W
Memory	
Type of memory	RAM
Work memory	
• integrated	75 kbyte
• expandable	No
Load memory	
• integrated	1 Mbyte
• Plug-in (SIMATIC Memory Card), max.	with SIMATIC memory card
Backup	
• present	Yes; maintenance-free
• without battery	Yes
CPU processing times	
for bit operations, typ.	0.085 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 in total (incl. times, counters, flags), max.	10 kbyte
Flag	
• Number, max.	4 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, 2 signal modules
Time of day	
Clock	
• Hardware clock (real-time clock)	Yes
• Backup time	480 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)
integrated channels (DI)	8
m/p-reading	Yes
Number of simultaneously controllable inputs	
all mounting positions	
— up to 40 °C, max.	8
Input voltage	
• Rated value (DC)	24 V
• for signal "0"	5 V DC at 1 mA
• for signal "1"	15 VDC at 2.5 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 @ 100 kHz & 1 @ 30 kHz, differential: 3 @ 80 kHz & 1 @ 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
integrated channels (DO)	6

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.
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
integrated channels (AI)	2; 0 to 10V
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	
Number of analog outputs	0
Analog value generation	
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
• PROFINET IO Device	Yes
• Open IE communication	Yes
• Web server	Yes
PROFINET IO Controller	
• Transmission rate, max.	100 Mbit/s
Services	
— Number of connectable IO Devices, max.	16
PROFINET IO Device	
Services	
— Shared device	Yes
— Number of IO Controllers with shared device, max.	2
Protocols	
Supports protocol for PROFINET IO	Yes
PROFIBUS	Yes; CM 1243-5 required
AS-Interface	Yes
Protocols (Ethernet)	
• TCP/IP	Yes
Further protocols	
• MODBUS	Yes
Communication functions	
S7 communication	
• supported	Yes
• as server	Yes
• as client	Yes
Open IE communication	
• TCP/IP	Yes
• ISO-on-TCP (RFC1006)	Yes
• UDP	Yes
Web server	
• supported	Yes
• User-defined websites	Yes
Number of connections	
• overall	16; dynamically
Test commissioning functions	
Status/control	
• Status/control variable	Yes

• Variables	Inputs/outputs, memory bits, DBs, distributed I/Os, timers, counters
Forcing	
• Forcing	Yes
Diagnostic buffer	
• present	Yes
Traces	
• Number of configurable Traces	2; Up to 512 KB of data per trace are possible
Integrated Functions	
Number of counters	4
Counting frequency (counter) max.	100 kHz
Frequency meter	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
Potential separation	
Potential separation digital inputs	
• Potential separation digital inputs	500V AC for 1 minute
• between the channels, in groups of	1
Potential separation digital outputs	
• Potential separation digital outputs	Relays
• between the channels	No
• between the channels, in groups of	2
EMC	
Interference immunity against discharge of static electricity	
• 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
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	
<ul style="list-style-type: none"> • Limit class A, for use in industrial areas • Limit class B, for use in residential areas 	<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>
Degree and class of protection	
Degree of protection acc. to EN 60529	
<ul style="list-style-type: none"> • IP20 	Yes
Standards, approvals, certificates	
CE mark	Yes
UL approval	Yes
cULus	Yes
FM approval	Yes
RCM (formerly C-TICK)	Yes
Marine approval	
<ul style="list-style-type: none"> • Marine approval 	Yes
Ambient conditions	
Free fall	
<ul style="list-style-type: none"> • Drop height, max. (in packaging) 	0.3 m; five times, in dispatch package
Ambient temperature during operation	
<ul style="list-style-type: none"> • min. • max. • horizontal installation, min. • horizontal installation, max. • vertical installation, min. • vertical installation, max. 	<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> <p>-20 °C</p> <p>60 °C</p> <p>-20 °C</p> <p>50 °C</p>
Ambient temperature during storage/transportation	
<ul style="list-style-type: none"> • min. • max. 	<p>-40 °C</p> <p>70 °C</p>
Air pressure acc. to IEC 60068-2-13	
<ul style="list-style-type: none"> • Storage/transport, min. • Storage/transport, max. • permissible operating height 	<p>660 hPa</p> <p>1 080 hPa</p> <p>-1000 to 2000 m</p>
Relative humidity	
<ul style="list-style-type: none"> • permissible range (without condensation) at 25 °C 	95 %
Vibrations	
<ul style="list-style-type: none"> • Vibrations • Operation, tested according to IEC 60068-2-6 	<p>2G wall mounting, 1G DIN rail</p> <p>Yes</p>
Shock test	

- 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

Extended ambient conditions

Pollutant concentrations

- SO2 at RH < 60% without condensation

SO2: < 0.5 ppm; H2S: < 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.

385 g

last modified:

13.01.2016