

SIMATIC S7-1200, CPU 1212C, compact CPU, DC/DC/DC, onboard I/O: 8 DI 24 V DC; 6 DO 24 V DC; 2 AI 0-10 V DC, Power supply: DC 20.4-28.8V DC, Program/data memory 75 KB



General information

Product type designation	CPU 1212C DC/DC/DC
Engineering with	
<ul style="list-style-type: none"> • Programming package 	STEP 7 V13 SP1 or higher

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
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) 	20.4 V
<ul style="list-style-type: none"> • permissible range, upper limit (DC) 	28.8 V

Input current

Current consumption (rated value)	400 mA; Typical
Inrush current, max.	12 A; at 28.8 V DC

Output current

for backplane bus (5 V DC), max.	1 000 mA; Max. 5 V DC for SM and CM
Encoder supply	
24 V encoder supply	
<ul style="list-style-type: none"> • 24 V 	Permissible range: 20.4V to 28.8V
Power loss	
Power loss, typ.	9 W
Memory	
Work memory	
<ul style="list-style-type: none"> • integrated • expandable 	50 kbyte No
Load memory	
<ul style="list-style-type: none"> • integrated • Plug-in (SIMATIC Memory Card), max. 	1 Mbyte 2 Gbyte; with SIMATIC memory card
Backup	
<ul style="list-style-type: none"> • present • without battery 	Yes; maintenance-free Yes
CPU processing times	
for bit operations, typ.	0.085 µs; / Operation
for word operations, typ.	1.7 µs; / Operation
for floating point arithmetic, typ.	2.3 µs; / Operation
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	
<ul style="list-style-type: none"> • Number, max. 	Limited only by RAM for code
Data areas and their retentivity	
Retentive data area (incl. timers, counters, flags), max.	10 kbyte
Flag	
<ul style="list-style-type: none"> • Number, max. 	4 kbyte; Size of bit memory address area
Address area	
I/O address area	
<ul style="list-style-type: none"> • Inputs • Outputs 	1 024 byte 1 024 byte
Process image	
<ul style="list-style-type: none"> • 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	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	6; HSC (High Speed Counting)
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 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	0.1 / 0.2 / 0.4 / 0.8 / 1.6 / 3.2 / 6.4 / 10.0 / 12.8 / 20.0 µs; 0.05 / 0.1 / 0.2 / 0.4 / 0.8 / 1.6 / 3.2 / 6.4 / 10.0 / 12.8 / 20.0 ms
— at "0" to "1", min.	0.1 µs
— at "0" to "1", max.	20 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
• of which high-speed outputs	4; 100 kHz Pulse Train Output
Short-circuit protection	No; to be provided externally
Limitation of inductive shutdown voltage to	L+ (-48 V)
Switching capacity of the outputs	
• with resistive load, max.	0.5 A
• on lamp load, max.	5 W
Output voltage	

• for signal "0", max.	0.1 V; with 10 kOhm load
• for signal "1", min.	20 V
Output current	
• for signal "1" rated value	0.5 A
• for signal "0" residual current, max.	0.1 mA
Output delay with resistive load	
• "0" to "1", max.	1 µs
• "1" to "0", max.	3 µs
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	
Number of analog outputs	0
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
• PROFINET IO Device	Yes
PROFINET IO Controller	
Services	
— Number of IO devices with prioritized startup, max.	16
Protocols	
Supports protocol for PROFINET IO	Yes
PROFIBUS	Yes; CM 1243-5 required
AS-Interface	Yes
Protocols (Ethernet)	
• TCP/IP	Yes
Open IE communication	
• ISO-on-TCP (RFC1006)	Yes
Further protocols	
• MODBUS	Yes
Communication functions	
S7 communication	
• supported	Yes
• as server	Yes
• as client	Yes
Web server	
• supported	Yes
Test commissioning functions	
Status/control	
• Status/control variable	Yes
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	6
Counting frequency (counter) max.	100 kHz
controlled positioning	Yes
PID controller	Yes
Number of alarm inputs	4
Number of pulse outputs	4
Limit frequency (pulse)	100 kHz

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	500V AC for 1 minute
• between the channels, in groups of	1
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	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	
• 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
UL approval	Yes
cULus	Yes
FM approval	Yes
RCM (formerly C-TICK)	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 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
• 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
Relative humidity	
• Operation, max.	95 %; no condensation
Vibrations	
• Operation, tested according to IEC 60068-2-6	Yes
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
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Dimensions

Width	90 mm
Height	100 mm
Depth	75 mm

last modified: 12/22/2017