



SIMATIC S7-1200, CPU 1215C, COMPACT CPU, DC/DC/DC, 2 PROFINET PORT, ONBOARD I/O: 14 DI 24V DC; 10 DO 24V DC 0.5A 2 AI 0-10V DC, 2 AO 0-20MA DC, POWER SUPPLY: DC 20.4 - 28.8 V DC, PROGRAM/DATA MEMORY: 125 KB

General information

Firmware version	V4.1
Engineering with	
<ul style="list-style-type: none"> Programming package 	STEP 7 V13 SP1 or higher

Display

with display	No
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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) permissible range, lower limit (DC) permissible range, upper limit (DC) 	24 V 5 V 250 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

Encoder supply

24 V encoder supply	
<ul style="list-style-type: none"> 24 V 	L+ minus 4 V DC min.

Output current

for backplane bus (5 V DC), max.	1 600 mA; Max. 5 V DC for SM and CM
Power loss	
Power loss, typ.	12 W
Memory	
Type of memory	EEPROM
Work memory	
<ul style="list-style-type: none"> • Integrated 	125 kbyte
<ul style="list-style-type: none"> • expandable 	No
Load memory	
<ul style="list-style-type: none"> • Integrated 	4 Mbyte
<ul style="list-style-type: none"> • Plug-in (SIMATIC Memory Card), max. 	with SIMATIC memory card
Backup	
<ul style="list-style-type: none"> • present 	Yes; maintenance-free
<ul style="list-style-type: none"> • Without battery 	Yes
CPU processing times	
for bit operations, typ.	0.085 µs; / instruction
for word operations, typ.	1.5 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	
<ul style="list-style-type: none"> • 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	
<ul style="list-style-type: none"> • Number, max. 	8 kbyte; Size of bit memory address area
Local data	
<ul style="list-style-type: none"> • per priority class, max. 	16 kbyte; Priority class 1 (program cycle): 16 KB, priority class 2 to 26: 6 KB
Address area	
I/O address area	
<ul style="list-style-type: none"> • Inputs 	1 024 byte
<ul style="list-style-type: none"> • Outputs 	1 024 byte
Process image	
<ul style="list-style-type: none"> • Inputs, adjustable 	1 kbyte
<ul style="list-style-type: none"> • 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	
<ul style="list-style-type: none"> • Hardware clock (real-time clock) • Deviation per day, max. • Backup time 	Yes +/- 60 s/month at 25 °C 480 h; Typical
Digital inputs	
Number of digital inputs	14; Integrated
<ul style="list-style-type: none"> • of which inputs usable for technological functions 	6; HSC (High Speed Counting)
integrated channels (DI)	14
m/p-reading	Yes
Number of simultaneously controllable inputs	
all mounting positions	
— up to 40 °C, max.	14
Input voltage	
<ul style="list-style-type: none"> • Rated value (DC) • for signal "0" • for signal "1" 	24 V 5 V DC at 1 mA 15 VDC at 2.5 mA
Input current	
<ul style="list-style-type: none"> • for signal "1", typ. 	1 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 at 100 kHz & 3 at 30 kHz, differential: 3 at 80 kHz & 3 at 30 kHz
Cable length	
<ul style="list-style-type: none"> • shielded, max. • unshielded, max. 	500 m; 50 m for technological functions 300 m; For technological functions: No
Digital outputs	
Number of digital outputs	10
<ul style="list-style-type: none"> • of which high-speed outputs 	4; 100 kHz Pulse Train Output
integrated channels (DO)	10
short-circuit protection	No; to be provided externally
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 μ s
• "1" to "0", max.	5 μ s
Switching frequency	
• of the pulse outputs, with resistive load, max.	100 kHz
Relay outputs	
• Number of relay outputs, integrated	0
Cable length	
• shielded, max.	500 m
• unshielded, max.	150 m
Analog inputs	
Number of analog inputs	2
integrated channels (AI)	2
Input ranges	
• Voltage	Yes
Input ranges (rated values), voltages	
• 0 to +10 V	Yes
• Input resistance (0 to 10 V)	≥ 100 k ohms
Cable length	
• shielded, max.	100 m; twisted and shielded
Analog outputs	
Number of analog outputs	2
integrated channels (AO)	2; 0 to 20 mA
Output ranges, voltage	
• 0 to 10 V	Yes
Output ranges, current	
• 0 to 20 mA	Yes
Cable length	
• shielded, max.	100 m; shielded, twisted pair
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 Device Yes; Also simultaneously with IO-Device functionality
- 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

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

<ul style="list-style-type: none"> • Status/control variable • Variables 	Yes Inputs/outputs, memory bits, DBs, distributed I/Os, timers, counters
Forcing	
<ul style="list-style-type: none"> • Forcing 	Yes
Diagnostic buffer	
<ul style="list-style-type: none"> • present 	Yes
Traces	
<ul style="list-style-type: none"> • 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
Frequency meter	Yes
controlled positioning	Yes
Number of position-controlled positioning axes, max.	8
Number of positioning axes via pulse-direction interface	4; With integrated outputs
PID controller	Yes
Number of alarm inputs	4
Number of pulse outputs	4
Limit frequency (pulse)	100 kHz

Potential separation	
Potential separation digital inputs	
<ul style="list-style-type: none"> • Potential separation digital inputs • between the channels, in groups of 	No 1
Potential separation digital outputs	
<ul style="list-style-type: none"> • Potential separation digital outputs • between the channels • between the channels, in groups of 	500V AC for 1 minute No 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	
<ul style="list-style-type: none"> • Interference immunity against discharge of static electricity acc. to IEC 61000-4-2 <ul style="list-style-type: none"> — Test voltage at air discharge — Test voltage at contact discharge 	Yes 8 kV 6 kV
Interference immunity to cable-borne interference	
<ul style="list-style-type: none"> • Interference immunity on supply lines acc. to IEC 61000-4-4 • Interference immunity on signal cables acc. to IEC 61000-4-4 	Yes 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	
• Marine approval	Yes
Ambient conditions	
Free fall	
• Drop height, max. (in packaging)	0.3 m; five times, in dispatch 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
• permissible operating height	-1000 to 2000 m
Relative humidity	

• Operation, max.	95 %; no condensation
• permissible range (without condensation) at 25 °C	95 %
Vibrations	
• Vibrations	2G wall mounting, 1G DIN rail
• Operation, tested according to IEC 60068-2-6	Yes
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
Pollutant concentrations	
— SO2 at RH < 60% without condensation	SO2: < 0.5 ppm; H2S: < 0.1 ppm; RH < 60% condensation-free
Configuration	
Configuration software	
• STEP 7	Yes
Programming	
Programming language	
— LAD	Yes
— FBD	Yes
— SCL	Yes
Cycle time monitoring	
• can be set	Yes
Dimensions	
Width	130 mm
Height	100 mm
Depth	75 mm
Weights	
Weight, approx.	500 g
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