



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

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 (AC)	
<ul style="list-style-type: none"> 120 V AC 230 V AC 	Yes
permissible range, lower limit (AC)	85 V
permissible range, upper limit (AC)	264 V
Line frequency	
<ul style="list-style-type: none"> permissible range, lower limit permissible range, upper limit 	47 Hz 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

Encoder supply

24 V encoder supply	
<ul style="list-style-type: none"> 24 V 	20.4 to 28.8V

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.	11 W
Memory	
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
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
• Deviation per day, max.	60 s/month at 25 °C

- Backup time 480 h; Typical

Digital inputs

Number of digital inputs	8; Integrated
<ul style="list-style-type: none"> • 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	
<ul style="list-style-type: none"> • Rated value (DC) 	24 V
<ul style="list-style-type: none"> • for signal "0" 	5 V DC at 1 mA
<ul style="list-style-type: none"> • 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	Yes; 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. 	500 m; 50 m for technological functions
<ul style="list-style-type: none"> • 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	
<ul style="list-style-type: none"> • with resistive load, max. 	2 A
<ul style="list-style-type: none"> • on lamp load, max. 	30 W with DC, 200 W with AC
Output delay with resistive load	
<ul style="list-style-type: none"> • "0" to "1", max. 	10 ms; max.
<ul style="list-style-type: none"> • "1" to "0", max. 	10 ms; max.
Switching frequency	
<ul style="list-style-type: none"> • of the pulse outputs, with resistive load, max. 	1 Hz
Relay outputs	
<ul style="list-style-type: none"> • Number of relay outputs 	6
<ul style="list-style-type: none"> • 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 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

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	
• 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
 - 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

- 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 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	
• Storage/transport, min.	660 hPa
• Storage/transport, max.	1 080 hPa
• permissible operating height	-1000 to 2000 m
Relative humidity	
• 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
Programming	
Programming language	
— LAD	Yes
— FBD	Yes
— SCL	Yes
Cycle time monitoring	
• can be set	Yes
Dimensions	
Width	90 mm
Height	100 mm
Depth	75 mm
Weights	
Weight, approx.	425 g
last modified:	29.05.2015