SIEMENS

*** SPARE PART*** 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: 25 KB

General information	
Product type designation	CPU 1212C AC/DC/Relay
Engineering with	
• Programming package	STEP 7 V10.5 or higher

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 range, lower limit	47 Hz
• permissible range, upper limit	63 Hz
Load voltage L+	
• Rated value (DC)	24 V
• permissible range, lower limit (DC)	5 V
• permissible range, upper limit (DC)	250 V

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

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

Encoder supply

24 V encoder supply

• 24 V	Permissible range: 20.4V to 28.8V

Power loss

Power loss, typ.	11 W

Memory

Work memory

• integrated	25 kbyte
• expandable	No

Load memory

• integrated	1 Mbyte
• Plug-in (SIMATIC Memory Card), max.	24 Mbyte; with SIMATIC memory card

Backup

• present	Yes; Entire project maintenance-free in the integral EEPROM
• without battery	Yes

CPU processing times

for bit operations, typ.	0.1 µs; / Operation
for word operations, typ.	12 µs; / Operation
for floating point arithmetic, typ.	18 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

• Number, max.	Limited only by RAM for code

Data areas and their retentivity

Retentive data area (incl. timers, counters, flags), max.	2 048 byte

Flag

• Number, max.	4 kbyte; Size of bit memory address area

Address area

I/O address area

• Inputs	1 024 byte
• Outputs	1 024 byte

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)	Yes
• Backup time	240 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)
Source/sink input	Yes

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	0.2 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 & 1 at 30 kHz, differential: 3 at 80 kHz & 1 at 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
Short-circuit protection	No; to be provided externally

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
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	
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

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Protocols

Supports protocol for PROFINET IO	No
PROFIBUS	No
AS-Interface	No
Protocols (Ethernet)	
• TCP/IP	Yes
Open IE communication	
• ISO-on-TCP (RFC1006)	Yes
Further protocols	
• MODBUS	No

Communication functions

S7 communication	
• supported	Yes
• as server	Yes
Open IE communication	
• TCP/IP	Yes
Web server	
• supported	Yes
• User-defined websites	Yes
Number of connections	
• overall	15; dynamically

Test commissioning functions

Status/control	
• Status/control variable	Yes
• Variables	Inputs/outputs, memory bits, DBs, distributed I/Os, timers, counters
Forcing	
• Forcing	Yes

Integrated Functions

Number of counters	4
Counting frequency (counter) max.	100 kHz
Frequency meter	Yes
controlled positioning	Yes
PID controller	Yes
Number of alarm inputs	4

Potential separation

Potential separation digital inputs	
• Potential separation digital inputs	No
• between the channels, in groups of	1
Potential separation digital outputs	
• Potential separation digital outputs	Yes; Relays

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• between the channels	No
• between the channels, in groups of	2

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
cULus	Yes
FM approval	Yes
RCM (formerly C-TICK)	Yes

Ambient conditions

Free fall

• Fall height, max.	0.3 m; five times, in product package

Ambient temperature during operation

• min.	0 °C
• max.	55 °C
• horizontal installation, min.	0 °C
• horizontal installation, max.	55 °C
• vertical installation, min.	0 °C

• vertical installation, max.	45 °C
• permissible temperature change	5°C to 55°C, 3°C / minute
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
Vibrations	
• Vibrations	2 g (m/s²) wall mounting, 1 g (m/s²) 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
Extended ambient conditions	
Pollutant concentrations	
— SO2 at RH < 60% without condensation	S02: < 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.	425 g
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