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[6ES7212-1HE40-0XB0](#)

**EN**

This Datasheet is presented by  
the manufacturer

**DE**

Dieses Datenblatt wird vom  
Hersteller bereitgestellt

**FR**

Cette fiche technique est  
présentée par le fabricant



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

#### Engineering with

- Programming package STEP 7 V13 SP1 or higher

### Display

- with display No

### Supply voltage

#### Rated value (DC)

- 24 V DC Yes

permissible range, lower limit (DC) 20.4 V

permissible range, upper limit (DC) 28.8 V

#### 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) 400 mA

Current consumption, max. 1 200 mA

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

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

Power losses	
Power loss, typ.	9 W
Memory	
Type of memory	EEPROM
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.	2.5 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
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

• 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 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 @ 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
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, integrated	6
• Number of relay outputs	6

• Number of operating cycles, max.	mechanically 10 million, at rated load voltage 100,000
<b>Cable length</b>	
• shielded, max.	500 m
• Unshielded, max.	150 m
<b>Analog inputs</b>	
Number of analog inputs	2
Integrated channels (AI)	2; 0 to 10 V
<b>Input ranges</b>	
• Voltage	Yes
<b>Input ranges (rated values), voltages</b>	
• 0 to +10 V	Yes
• Input resistance (0 to 10 V)	≥100k ohms
<b>Cable length</b>	
• shielded, max.	100 m; twisted and shielded
<b>Analog value creation</b>	
<b>Integration and conversion time/resolution per channel</b>	
• Resolution with overrange (bit including sign), max.	10 bit
• Integration time, parameterizable	Yes
• Conversion time (per channel)	625 µs
<b>Encoder</b>	
<b>Connectable encoders</b>	
• 2-wire sensor	Yes
<b>1st interface</b>	
Interface type	PROFINET
Physics	Ethernet
Isolated	Yes
Automatic detection of transmission speed	Yes
Autonegotiation	Yes
Autocrossing	Yes
<b>Functionality</b>	
• PROFINET IO Device	Yes
• PROFINET IO Controller	Yes
<b>PROFINET IO Controller</b>	
• Transmission rate, max.	100 Mbit/s
• Number of connectable IO devices, max.	16
• Prioritized startup	
— Number of IO Devices, max.	16
<b>PROFINET IO Device</b>	
<b>Services</b>	
— 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
Counter frequency (counter) max.	100 kHz
Frequency meter	Yes
controlled positioning	Yes
PID controller	Yes
Number of alarm inputs	4

## Galvanic isolation

### Galvanic isolation digital inputs

- Galvanic isolation digital inputs 500V AC for 1 minute
- between the channels, in groups of 1

### Galvanic isolation digital outputs

- Galvanic isolation digital outputs Relays
- 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
  - 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 lines acc. to IEC 61000-4-4 Yes

### Surge immunity

- on the supply lines acc. to IEC 61000-4-5 Yes

### Immunity against conducted interference 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 to EN 60529

- IP20 Yes

## Standards, approvals, certificates

CE mark Yes

UL approval Yes

cULus Yes

RCM (formerly C-TICK) Yes

FM approval 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 in 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
<b>Storage/transport temperature</b>	
• Min.	-40 °C
• max.	70 °C
<b>Air pressure acc. to IEC 60068-2-13</b>	
• Storage/transport, min.	660 hPa
• Storage/transport, max.	1 080 hPa
• Permissible operating height	-1000 to 2000 m
<b>Relative humidity</b>	
• Operation, max.	95 %; no condensation
• Permissible range (without condensation) at 25 °C	95 %
<b>Vibrations</b>	
• Vibrations	2G wall mounting, 1G DIN rail
• Operation, checked according to IEC 60068-2-6	Yes
<b>Shock test</b>	
• checked 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
<b>Pollutant concentrations</b>	
— SO2 at RH < 60% without condensation	SO2: < 0.5 ppm; H2S: < 0.1 ppm; RH < 60% condensation-free
<b>programming</b>	
<b>Programming language</b>	
— LAD	Yes
— FBD	Yes
— SCL	Yes
<b>Cycle time monitoring</b>	
• can be set	Yes
<b>Dimensions</b>	
Width	90 mm
Height	100 mm
Depth	75 mm
<b>Weights</b>	
Weight, approx.	385 g
<b>last modified:</b>	12.03.2015



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