SIEMENS

Data sheet 6ES7212-1BD30-0XB0

Spare part SIMATIC S7-1200, CPU 1212C, compact CPU, AC/DC/relay, onboard I/O: 8 DI 24 V DC; 6 DO relay 2 A; 2 AI 0-10 V 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 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
Protocols	
• PROFINET IO Controller	Yes

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

Communication functions	
S7 communication	
• supported	Yes
• as server	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 measurement	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
• 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
Altitude during operation relating to sea level	
• Installation altitude, min.	-1 000 m
• Installation altitude, max.	2 000 m
Relative humidity	
• Operation, max.	95 %; no condensation
Vibrations	
• Vibration resistance during operation acc. to IEC 60068-2-6	2 g (m/s²) wall mounting, 1 g (m/s²) DIN rail
• Operation, tested according to IEC 60068-2-6	Yes
Shock testing	
• 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	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

last modified: 01/31/2019