SIEMENS

Data sheet

6ES7212-1BB23-0XB0



Spare part SIMATIC S7-200, CPU 222 Compact unit, AC power supply 8 DI DC/6 DO relay 4 KB progr./2 KB data, PROFIBUS DP expandable

Figure similar

Supply voltage	
Rated value (AC)	
• 120 V AC	Yes
• 230 V AC	Yes
Load voltage L+	
Rated value (DC)	24 V
 permissible range, lower limit (DC) 	5 V
 permissible range, upper limit (DC) 	30 V
Load voltage L1	
Rated value (AC)	100 V; 100 V AC to 230 V AC
 permissible range, lower limit (AC) 	5 V
 permissible range, upper limit (AC) 	250 V
 permissible frequency range, lower limit 	47 Hz
 permissible frequency range, upper limit 	63 Hz
Input current	
Inrush current, max.	20 A; at 264 V
from supply voltage L1, max.	140 mA; 20 to 70 mA (240 V); 40 to 140 mA (120 V); output current for expansion modules (5 V DC) 340 mA
Encoder supply	
24 V encoder supply	
• 24 V	Yes; Permissible range: 20.4V to 28.8V
 Short-circuit protection 	Yes; electronic at 600 mA
 Output current, max. 	180 mA
Power loss	
Power loss, typ.	7 W
Memory	
Number of memory modules (optional)	1; pluggable memory module, content identical with integral EEPROM; can additionally store recipes, data logs and other files
Work memory	
 integrated (for program) 	4 kbyte
 integrated (for data) 	2 kbyte
Backup	
• present	Yes; Program: Entire program maintenance-free on integral EEPROM, programmable via CPU; data: Entire DB 1 loaded from PG/PC maintenance-free on integral EEPROM, current values of DB 1 in RAM, retentive memory bits, timers, counters, etc. maintenance-free via high-performance capacitor; optional battery for long-term buffering
Battery	
Backup battery	

 Backup time, max. 	50 h; (min. 8 h at 40 °C);	200 days (typ.) with optional battery module
CPU processing times	. ,,	
for bit operations, max.	0.22 µs	
Counters, timers and their retentivity		
S7 counter		
Number	256	
Retentivity		
— adjustable	Yes; via high-performanc	e capacitor or battery
— lower limit	1	
— upper limit	256	
Counting range		
— lower limit	0	
— upper limit	32 767	
S7 times		
Number	256	
Retentivity		
— adjustable	Yes; via high-performanc	e capacitor or battery
— upper limit	64	
Time range		
— lower limit	1 ms	
— upper limit		30 s; 16 timers: 10 ms to 5 min; 236 timers:
	100 ms to 54 min	
Data areas and their retentivity		
Flag		
• Size, max.	32 byte	
Retentivity available	Yes; M 0.0 to M 31.7	
 of which retentive with battery 		nance capacitor or battery, adjustable
 of which retentive without battery 	0 to 112 in EEPROM, adj	ustable
Hardware configuration		
Number of expansion units, max.		es of the S7-22x series can be used. Due to , the use of expansion modules may be limited.
connectable programming devices/PCs	SIMATIC PG/PC, standar	
Expansion modules		
Analog inputs/outputs, max.	10; max. 8 inputs and 2 of	outputs (EM) or max. 0 inputs and 4 outputs
	(EM)	
 Digital inputs/outputs, max. 	78; max. 40 inputs and 38	8 outputs (CPU + EM)
 AS-Interface inputs/outputs, max. 	62; AS-Interface A/B slav	res (CP 243-2)
Digital inputs		
Number of digital inputs	8	
Source/sink input	Yes; optionally, per group)
Input voltage		
Rated value (DC)	24 V	
• for signal "0"	0 to 5 V	
• for signal "1"	min. 15 V	
Input current		
● for signal "1", typ.	2.5 mA	
Input delay (for rated value of input voltage)		
for standard inputs		
— parameterizable	Yes; all	
— at "0" to "1", min.	0.2 ms	
— at "0" to "1", max.	12.8 ms	
for interrupt inputs		
— parameterizable	Yes; I 0.0 to I 0.3	
for technological functions		
— parameterizable	Yes; (E 0.0 to E 0.5) 30 k	Hz
Cable length		
• shielded, max.		00 m, high-speed counters: 50 m
• unshielded, max.	300 m; not for high-speed	d signals
Digital outputs		
Number of digital outputs	6; Relays	
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Short-circuit protection	No: to be provided externally
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 voltage	L+/L1
for signal "1", min.	
Output current	2.4
• for signal "1" rated value	2 A 0 m 0
for signal "0" residual current, max.	0 mA
Output delay with resistive load	10 mai all autouta
• "0" to "1", max.	10 ms; all outputs
• "1" to "0", max.	10 ms; all outputs
Parallel switching of two outputs	Na
for uprating Tatal surrant of the surrants (non group)	No
Total current of the outputs (per group)	
all mounting positions	C A
— up to 40 °C, max.	6 A
horizontal installation	
— up to 55 °C, max.	6 A
Relay outputs	
Number of relay outputs	6
Number of operating cycles, max.	10 000 000; mechanically 10 million, at rated load voltage 100 000
Cable length	500
• shielded, max.	500 m
unshielded, max.	150 m
Analog inputs	
Number of analog potentiometers	1; Analog potentiometer; resolution 8 bit
Encoder	
Connectable encoders	
• 2-wire sensor	Yes
 permissible quiescent current (2-wire sensor), 	1 mA
max.	
1. Interface	
Interface type	Integrated RS 485 interface
Protocols	
• MPI	Yes; As MPI slave for data exchange with MPI masters (S7-300/S7-400 CPUs, OPs, TDs, Push Button Panels); S7-200-internal CPU/CPU communication is possible in the MPI network with restrictions; transmission rates: 19.2/187.5 kbit/s
• PPI	Yes; with PPI protocol for program functions, HMI functions (TD 200, OP), S7-200-internal CPU/CPU communication ; transmission rates 9.6/19.2/187.5 kbit/s
 serial data exchange 	Yes; As freely programmable interface with interrupt facility for serial data exchange with third-party devices with ASCII protocol transfer rates: 1.2 / 2.4 / 4.8 / 9.6 / 19.2 / 38.4 / 57.6 / 115.2 kbps; the PC/PPI cable can also be used as RS 232/RS 485 converter
MPI	
 Transmission rate, min. 	19.2 kbit/s
 Transmission rate, max. 	187.5 kbit/s
Integrated Functions	
Counter	
Number of counters	4; High-speed counters (30 kHz each), 32 bit (incl. sign), can be used as up/down counters or for connecting 2 incremental encoders with 2 pulse trains offset by 90° (max. 20 kHz (A/B counters)); parameterizable enable and reset input; interrupt facilities (incl. call of subroutine with any content) when the setpoint is reached; reversal in counting direction, etc. 30 kHz
Counting frequency, max.	
Number of alarm inputs	4; 4 rising edges and/or 4 falling edges
Potential separation	
Potential separation digital inputs	
between the channels	Yes
 between the channels, in groups of 	4
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Potential separation digital outputs	
between the channels	Yes; Relays
 between the channels, in groups of 	3
Permissible potential difference	
between different circuits	500 V DC between 24 V DC and 5 V DC; 1500 V AC between 24 V DC and 230 V AC
Degree and class of protection	
IP degree of protection	IP20
Ambient conditions	
Ambient temperature during operation	
horizontal installation, min.	0 °C
 horizontal installation, max. 	55 °C
 vertical installation, min. 	0 °C
 vertical installation, max. 	45 °C
Air pressure acc. to IEC 60068-2-13	
 permissible range, lower limit 	860 hPa
 permissible range, upper limit 	1 080 hPa
Relative humidity	
• Operation, min.	5 %
Operation, max.	95 %; RH class 2 in accordance with IEC 1131-2
configuration / header	
configuration / programming / header	
 Command set 	Bit logic instructions, compare instructions, timer instructions, counter instructions, clock instructions, transmissions instructions, table instructions, logic instructions, shift and rotate instructions, conversion instructions, program control instructions, interrupt and communications instructions, logic stack instructions, integer maths, floating-point math instructions, numerical functions
 Program processing 	free cycle (OB 1), interrupt-controller, time-controlled (1 to 255 ms)
Program organization	1 OB, 1 DB, 1 SDB subroutines with/without parameter transfer
Number of subroutines, max.	64
Programming language	
— LAD	Yes
— FBD	Yes
— STL	Yes
Know-how protection	
 User program protection/password protection 	Yes; 3-stage password protection
connection method / header	
Plug-in I/O terminals	No
Dimensions	
Width	90 mm
Height	80 mm
Depth	62 mm
Veights	
Weight, approx.	310 g
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