SIEMENS

Data sheet

6ES7212-1BB23-0XB0

SIMATIC S7-200, CPU 222 COMPACT UNIT, AC POWER SUPPLY 8 DI DC/6 DO RELAY 4 KB CODE/2 KB DATA, PROFIBUS DP EXTENDABLE



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

24 V Yes; Parmissible range: 20.4V to 28.8V • Short-circuit protection Yes; electronic at 600 mA • Output current, max. 180 mA Memory It: pluggable memory module, content identical with integral EEPROM; can additionally store recipes, data logs and other files Work memory Integrated (for program) • Integrated (for data) 2 kbyte Backup Yes; Program: Entire program maintenance-free on integral EEPROM, congrammable via CPU, data: Entire DB I claded from PG/PC maintenance-free via high-performance capacitor; optional battery for long-term buffering Backup Yes; Program: Entire program maintenance-free on integral EEPROM, programmable via CPU, data: Entire DB I claded from PG/PC maintenance-free via high-performance capacitor; optional battery for long-term buffering Backup battery • Backup time, max. • Backup time, max. 50 h; (min. 8 h at 40 °C); 200 days (typ.) with optional battery module Counters, timers and their retentivity 52 fs 57 counter • Number 256 of which retentive with battery 1 — can be set Yes; via high-performance capacitor or battery — lower limit 0 — upper limit 256 Outing range 0 — upper limit 256 Or link 256 Outing ran	Encoder supply	
• Short-circuit protection Yes; electronic at 600 mA • Output current, max. 180 mA Memory 1; pluggable memory module, content identical with integral • Experiment of memory modules (optional) 1; pluggable memory module, content identical with integral • Mork memory 4 kbyte • integrated (for program) 4 kbyte • integrated (for data) 2 kbyte Backup Ves; Program: Entire program maintenance-free on integral EEPROM, programmable via CPU; data: Entre 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 or integral EEPROM, current values of DB 1 in RAM, retentive memory bits, timers, counters, etc. maintenance-free or integral EEPROM, programmable via CPU; data: Entre DB 1 loaded from module Backup battery • So h; (min. 8 h at 40 °C); 200 days (typ.) with optional battery module • PU processing times 50 h; (min. 8 h at 40 °C); 200 days (typ.) with optional battery module for bit operations, max. 0.22 µs Counters, timers and their retentivity 256 for which retentive with battery 1 - can be set 0 - uoper limit 32 767 S7 times 256 of which retentive with battery - - lower limit 32 767 S7 times 256 of which retentiv		
• Output current, max. 180 mA 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. 0.22 µs Counters, timers and their retentivity • S7 counter 256 of which retentive with battery • • can be set Yes; via high-performance capacitor or battery • lower limit 1 • upper limit 256 Counting range • • lower limit 256 Outing range • • lower limit 256 Owithin tetentive with battery	• 24 V	Yes; Permissible range: 20.4V to 28.8V
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• Number 256 of which retentive with battery	— upper limit	32 767
of which retentive with battery — can be set — upper limit 64 Time range	S7 times	
— can be set Yes; via high-performance capacitor or battery — upper limit 64 Time range Time range	• Number	256
— upper limit 64 Time range	of which retentive with battery	
Time range	— can be set	Yes; via high-performance capacitor or battery
	— upper limit	64
— lower limit 1 ms	Time range	
	— lower limit	1 ms

- upper limit

54 min; 4 timers: 1 ms to 30 s; 16 timers: 10 ms to 5 min; 236 timers: 100 ms to 54 min

Data areas and their retentivity	
Flag	
• Number, max.	32 byte
 Retentivity available 	Yes; M 0.0 to M 31.7
 of which retentive with battery 	0 to 255, via high-performance capacitor or battery, adjustable
• of which retentive without battery	0 to 112 in EEPROM, adjustable
Hardware configuration	
Number of expansion units, max.	2; Only expansion modules of the S7-22x series can be used. Due to the limited output current, the use of expansion modules may be limited.
connectable programming devices/PCs	SIMATIC PG/PC, standard PC
Expansion modules	
 Analog inputs/outputs, max. 	10; max. 8 inputs and 2 outputs (EM) or max. 0 inputs and 4 outputs (EM)
 Digital inputs/outputs, max. 	78; max. 40 inputs and 38 outputs (CPU + EM)
 AS-Interface inputs/outputs, max. 	62; AS-Interface A/B slaves (CP 243-2)
Digital inputs	
Number of digital inputs	8
m/p-reading	Yes; optionally, per group
Input voltage	
● 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 counter/technological functions	
— parameterizable	Yes; (E 0.0 to E 0.5) 30 kHz
Cable length	
• shielded, max.	500 m; Standard input: 500 m, high-speed counters: 50 m
• unshielded, max.	300 m; not for high-speed signals
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 voltage	
● for signal "1", min.	L+/L1
Output current	
 for signal "1" rated value 	2 A
 for signal "0" residual current, max. 	0 mA
Output delay with resistive load	
• "0" to "1", max.	10 ms; all outputs
• "1" to "0", max.	10 ms; all outputs
Parallel switching of 2 outputs	
• for uprating	No
Total current of the outputs (per group)	
all mounting positions	
— up to 40 °C, max.	6 A
horizontal installation	
— up to 55 °C, max.	6 A
Relay outputs	
 Number of relay outputs, integrated 	6
 Number of operating cycles, max. 	10 000 000; mechanically 10 million, at rated load voltage 100,000
Cable length	
• 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	1 mA
sensor), max.	
1. Interface	
Interface type	Integrated RS 485 interface
Physics	RS 485
Functionality	
• MPI • PPI	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 Yes; with PPI protocol for program functions, HMI functions (TD 200, OP) S7-200-internal CPII/CPII communication :
	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 kbit/s; the PC/PPI cable can also be used as RS232/RS485 converter
MPI	
• Transmission rate, min.	19.2 kbit/s
• Transmission rate, max.	187.5 kbit/s
Integrated Functions	
Number of counters	4; High-speed counters (30 kHz each), 32 bits (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.
Counting frequency (counter) max.	30 kHz
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
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	
Degree of protection acc. to EN 60529	
• IP20	Yes
Ambient conditions	
Environmental conditions	For further environmental conditions, see "Automation System S7- 200, System Manual"
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, min.	860 hPa
• permissible range, max.	1 080 hPa
Relative humidity	
• Operation, min.	5 %

• Operation, max.

Configuration	
Programming	
 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	
Plug-in I/O terminals	No
Dimensions	
Width	90 mm
Height	80 mm
Depth	62 mm
Weights	
Weight, approx.	310 g
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