Data sheet

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	
Innut ourrant		
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
	current for expansion modules (5 v 20) 646 mix
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-performance capacitor or battery
— lower limit	1
— upper limit	256
Counting range	
— lower limit	0
— upper limit	32 767
S7 times	
Number	256
Retentivity	

Time range	— adjustable — upper limit	Yes; via high-performance capacitor or battery 64	
lower limit 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 7est mt. 0 to 25, via high-performance capacitor or battery, adjustable of which retentive with battery 0 to 25, via high-performance capacitor or battery, adjustable 0 to 112 in EEPROM, adj	• •		
Data areas and their retentivity Flag Number, max. Retentivity available of which retentive with battery of which retentive without battery of which retentive without battery of which retentive without battery 10 to 255, via high-performance capacitor or battery, adjustable Wardware 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. AS-interface inputs/outputs, max. AS-interface inputs/outputs, max. Cipital inputs Rumber of digital inputs Rumber of digital inputs Rated value (DC) For signal "1" Input delay (for rated value of input voltage) for standard inputs — parameterizable A to" to "1", max. Fes; I 0.0 to I 0.3 for counter/technological functions — parameterizable Yes; I 0.0 to E 0.5) 30 kHz		1 ms	
Plag ● Number, max. ● Retentivity available • of which retentive with battery • of which retentive with battery • of which retentive without battery • of which retentive with battery • of vexpansion modules • Analog inputs/outputs, max. • Alanlog inputs outputs (EM) or max. 0 inputs and 4 outputs (EM) • Page inputs and 2 outputs (EM) or max. 0 inputs and 4 outputs (EM) • Page inputs and 3 outputs (EM) or max. 0 inputs and 4 outputs (EM) • Contect/outputs, max. • Alanlog inputs and 3 outputs (EM) or max. 0 inputs and 4 outputs (EM) • Alanlog inputs and 4 outputs (EM) or max. 0 inputs and 4 outputs (EM) • Contect/outputs, max. • Alanlog inputs and 2 outputs (EM) or max. 0 inputs and 4 outputs (EM) • Alanlog inputs and 3 outputs (EM) or max. 0 inputs and 4 outputs (EM) • Alanlog inputs and 4 outputs and 4 outputs (EM) • Alanlog inputs a	— upper limit	54 min; 4 timers: 1 ms to 30 s; 16 timers: 10 ms to 5 min; 236	
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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. SIMATIC PG/PC, standard PC Expansion modules • Analog inputs/outputs, max. • As-Interface inputs/outputs, max. • AS-Interface inputs/outputs, max. Digital inputs Number of digital inputs Number of digital inputs 8 Source/sink input Pated value (DC) • for signal "1" • for signal "1" Input current • for signal "1", typ. Input delay (for rated value of input voltage) for standard inputs — parameterizable — at "0" to "1", min. — at "0" to "1", max. for interrupt inputs — parameterizable — yes; (E 0.0 to E 0.5) 30 kHz	of which retentive with battery	0 to 255, via high-performance capacitor or battery, adjustable	
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 Expansion modules • Analog inputs/outputs, max. • Digital inputs/outputs, max. • AS-Interface inputs/outputs, max. • AS-Interface inputs/outputs, max. • AS-Interface inputs/outputs, max. • AS-Interface inputs/outputs, max. Digital inputs Number of digital inputs 8 Source/sink input Input voltage • Rated value (DC) • for signal "0" • for signal "1"	of which retentive without battery	0 to 112 in EEPROM, adjustable	
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Expansion modules • Analog inputs/outputs, max. • Digital inputs/outputs, max. • AS-Interface A/B slaves (CP 243-2) Digital inputs Number of digital inputs 8 Source/sink input Input voltage • Rated value (DC) • for signal "0" • for signal "1" Input current • for signal "1", typ. 2.5 mA Input delay (for rated value of input voltage) for standard inputs — parameterizable — at "0" to "1", min. — at "0" to "1", max. for interrupt inputs — parameterizable	Number of expansion units, max.	to the limited output current, the use of expansion modules may	
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AS-Interface inputs/outputs, max. Digital inputs Number of digital inputs Source/sink input Input voltage Rated value (DC) for signal "0" for signal "1" Input current for signal "1", typ. Input delay (for rated value of input voltage) for standard inputs — parameterizable — at "0" to "1", max. 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	 Analog inputs/outputs, max. 		
Number of digital inputs Source/sink input Input voltage Rated value (DC) for signal "0" for signal "1" Input current for signal "1", typ. Input delay (for rated value of input voltage) for standard inputs — parameterizable — at "0" to "1", max. for interrupt inputs — parameterizable — parameterizable — parameterizable — at "0" to "1", max. for counter/technological functions — parameterizable — parameterizable — parameterizable — Yes; I 0.0 to I 0.3 for counter/technological functions — parameterizable Yes; (E 0.0 to E 0.5) 30 kHz	 Digital inputs/outputs, max. 	78; max. 40 inputs and 38 outputs (CPU + EM)	
Number of digital inputs Source/sink input Input voltage Rated value (DC) for signal "0" for signal "1" Input current for signal "1", typ. Input delay (for rated value of input voltage) for standard inputs - parameterizable - at "0" to "1", max. for interrupt inputs - parameterizable - parameterizable yes; I 0.0 to I 0.3 for counter/technological functions - parameterizable Yes; (E 0.0 to E 0.5) 30 kHz	 AS-Interface inputs/outputs, max. 	62; AS-Interface A/B slaves (CP 243-2)	
Source/sink input Input voltage • Rated value (DC) • for signal "0" • for signal "1" Input current • for signal "1", typ. Input delay (for rated value of input voltage) for standard inputs — parameterizable — at "0" to "1", min. — at "0" to "1", max. for interrupt inputs — parameterizable — parameterizable — parameterizable — parameterizable — parameterizable — parameterizable — parameterizable Yes; I 0.0 to I 0.3 for counter/technological functions — parameterizable Yes; (E 0.0 to E 0.5) 30 kHz	Digital inputs		
Input voltage • Rated value (DC) • for signal "0" • for signal "1" Input current • for signal "1", typ. Input delay (for rated value of input voltage) for standard inputs — parameterizable — at "0" to "1", min. — at "0" to "1", max. for interrupt inputs — parameterizable — parameterizable yes; all 9.2 ms 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	Number of digital inputs	8	
 Rated value (DC) 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 at "0" to "1", min. 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 	Source/sink input	Yes; optionally, per group	
• for signal "0" • for signal "1" Input current • for signal "1", typ. 2.5 mA Input delay (for rated value of input voltage) for standard inputs — parameterizable — at "0" to "1", min. — at "0" to "1", max. for interrupt inputs — parameterizable — parameterizable Yes; I 0.0 to I 0.3 for counter/technological functions — parameterizable Yes; (E 0.0 to E 0.5) 30 kHz	Input voltage		
• 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	Rated value (DC)	24 V	
Input current ● for signal "1", typ. 2.5 mA Input delay (for rated value of input voltage) for standard inputs — parameterizable — at "0" to "1", min. — at "0" to "1", max. for interrupt inputs — parameterizable — parameterizable Yes; I 0.0 to I 0.3 for counter/technological functions — parameterizable Yes; (E 0.0 to E 0.5) 30 kHz	• for signal "0"	0 to 5 V	
● for signal "1", typ. Input delay (for rated value of input voltage) for standard inputs — parameterizable — at "0" to "1", min. — at "0" to "1", max. 12.8 ms for interrupt inputs — parameterizable — parameterizable Yes; I 0.0 to I 0.3 for counter/technological functions — parameterizable Yes; (E 0.0 to E 0.5) 30 kHz	● for signal "1"	min. 15 V	
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	Input current		
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	• for signal "1", typ.	2.5 mA	
 — parameterizable — at "0" to "1", min. — at "0" to "1", max. — at "0" to "1", max. for interrupt inputs — parameterizable — parameterizable — parameterizable — parameterizable Yes; I 0.0 to I 0.3 for counter/technological functions — parameterizable Yes; (E 0.0 to E 0.5) 30 kHz 	Input delay (for rated value of input voltage)		
- at "0" to "1", min. - at "0" to "1", max. 12.8 ms for interrupt inputs - parameterizable for counter/technological functions - parameterizable Yes; (E 0.0 to E 0.5) 30 kHz	for standard inputs		
- at "0" to "1", max. 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	— parameterizable	Yes; all	
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	— at "0" to "1", min.	0.2 ms	
 — parameterizable Yes; I 0.0 to I 0.3 for counter/technological functions — parameterizable Yes; (E 0.0 to E 0.5) 30 kHz 	— at "0" to "1", max.	12.8 ms	
for counter/technological functions — parameterizable Yes; (E 0.0 to E 0.5) 30 kHz	for interrupt inputs		
— parameterizable Yes; (E 0.0 to E 0.5) 30 kHz	— parameterizable	Yes; I 0.0 to I 0.3	
	for counter/technological functions		
Cable length	— parameterizable	Yes; (E 0.0 to E 0.5) 30 kHz	
	Cable length		

• 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 two 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		
Analysis to the			
Analog inputs Number of analog potentiometers	1; Analog potentiometer; resolution 8 bit		
Number of analog potentiometers	1, Analog potentionneter, resolution o bit		
Encoder			
Connectable encoders			
• 2-wire sensor	Yes		
 permissible quiescent current (2-wire sensor), max. 	1 mA		
1. Interface			
Interface type	Integrated RS 485 interface		
Physics	RS 485		
Functionality			

500 m; Standard input: 500 m, high-speed counters: 50 m

• shielded, max.

• 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	
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	
Ambient temperature during operation	
horizontal installation, min.	0 °C
horizontal installation, max.	55 °C
 vertical installation, min. 	0 °C
	17.00
 vertical installation, max. 	45 °C
• vertical installation, max. Air pressure acc. to IEC 60068-2-13	45 °C

 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 Programming Bit logic instructions, compare instructions, timer instructions, • Command set 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 free cycle (OB 1), interrupt-controller, time-controlled (1 to 255 Program processing ms) • Program organization 1 OB, 1 DB, 1 SDB subroutines with/without parameter transfer • Number of subroutines, max. Programming language — LAD Yes Yes — FBD - STL Yes Know-how protection Yes; 3-stage password protection • User program protection/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

05/25/2018

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last modified: