SIEMENS

Data sheet

6ES7214-1AD23-0XB0

SIMATIC S7-200, CPU 224, COMPACT UNIT, DC POWER SUPPLY 14 DI DC/10 DO DC, 8/12 KB CODE/8 KB DATA, PROFIBUS DP EXTENDABLE



Figure similar

Supply voltage	
Rated value (DC)	
• 24 V DC	Yes
Load voltage L+	
 Rated value (DC) 	24 V
 permissible range, lower limit (DC) 	20.4 V
 permissible range, upper limit (DC) 	28.8 V
Input current	
Inrush current, max.	12 A; at 28.8 V
from supply voltage L+, max.	700 mA; 110 mA to 700 mA, output current for expansion modules (5 V DC) 660 mA
Encoder supply	
24 V encoder supply	
• 24 V	Yes; permissible range: 15.4 to 28.8 V
Short-circuit protection	Yes; electronic at 280 mA
• Output current, max.	280 mA

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) 	12 kbyte; 8 KB with active run-time edit
 integrated (for data) 	8 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. 	100 h; (min. 70 h at 40 $^\circ\text{C}$); 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	
— adjustable	Yes; via high-performance capacitor or battery
— upper limit	64
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 without battery 0 to 112 in EEPROM, adjustable Hardware configuration 7; Only expansion modules of the 57-22x series can be used. Due to the funded output current, the use of expansion modules may be limited. connectable programming devices/PCs SIMATIC PO/PC, standard PC Expansion modules 35; max. 28 inputs and 7 outputs (EM) or max. 0 inputs and 14 outputs (FM) • Digital inputs/outputs, max. 166; max. 94 inputs and 74 outputs (CPU + EM) • Analog inputs/outputs, max. 166; max. 94 inputs and 74 outputs (CPU + EM) • Analog inputs/outputs, max. 167; only expansion. • Optial inputs 14 Source/sink input Yes: optionally, per group Input voltage - • Reted value (DC) 24 V • for signal *0" 0 to 5 V • for signal *1" min. 15 V Input delay (for rated value of input voltage) - for signal *1" 0.2 ms - parameterizable Yes; all - at *0" to *1", max. 12.8 ms for interrupt inputs - - parameterizable Yes; (E 0.0 to E 1.5) 30 kHz Cable length shelded, max. 300 m, not	 of which retentive with battery 	0 to 255, via high-performance capacitor or battery, adjustable
Number of expansion units, max. 7: 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 4. Analog inputs/outputs, max. • Analog inputs/outputs, max. 35; max. 28 inputs and 7 outputs (EM) or max. 0 inputs and 14 outputs (EM) • Digital inputs 168; max. 94 inputs and 74 outputs (CPU + EM) • AS-Interface inputs/outputs, max. 62; AS-Interface A/B slaves (CP 243-2) Optical inputs 14 Source/sink input Yes; optionally, per group Input voltage 24 V • for signal "0" 0 to 5 V • for signal "1" min. 15 V Input delay (for rated value of input voltage) for standard inputs for signal "1", typ. 2.5 mA Input delay (for rated value of input voltage) Yes; all - at "0" to "1", min. 0.2 ms - parameterizable Yes; i 0.0 to 1 0.3 for contret/rechnological functions - - parameterizable Yes; i (E 0.0 to E 1.5) 30 kHz Cable length 500 m; Standard input; 500 m, high-speed counters; 50 m unshielded, max. 300 m; not for h	 of which retentive without battery 	0 to 112 in EEPROM, adjustable
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Number of digital outputs 10; Transistor Short-circuit protection No; to be provided externally Limitation of inductive shutdown voltage to 1 W Switching capacity of the outputs 0.75 A • with resistive load, max. 5 W	Digital outputs	
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Switching capacity of the outputs • with resistive load, max. • on lamp load, max. 5 W		No; to be provided externally
 with resistive load, max. on lamp load, max. 5 W 		
• on lamp load, max. 5 W	Switching capacity of the outputs	
		0.75 A
	• on lamp load, max.	5 W
	·	

● for signal "1", min.	20 V DC
Output current	
 for signal "1" rated value 	750 mA
 for signal "0" residual current, max. 	10 μΑ
Output delay with resistive load	
• "0" to "1", max.	15 μs; of the standard outputs, max. (Q 0.2 to Q 1.1) 2 μs; of the
	pulse outputs, max. (Q 0.0 to Q 0.1) 2 µs
• "1" to "0", max.	130 $\mu s;$ of the standard outputs, max. (Q 0.2 to Q 1.1) 10 $\mu s;$ of
	the pulse outputs, max. (Q 0.0 to Q 0.1) 10 μs
Parallel switching of two outputs	
● for uprating	Yes
Switching frequency	
 of the pulse outputs, with resistive load, max. 	20 kHz; Q0.0 to Q0.1
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 	0
Cable length	
• shielded, max.	500 m
• unshielded, max.	150 m
Analog inputs	
Number of analog potentiometers	2; 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	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	6; High-speed counters (30 kHz each), 32 bits (incl. sign), can be
Number of counters	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
Number of pulse outputs	2; High-speed outputs, 20 kHz, with interrupt option; pulse-width and frequency modulation option
Limit frequency (pulse)	20 kHz
Potential separation	
Potential separation digital inputs	
• between the channels	Yes
 between the channels, in groups of 	6 and 8
Potential separation digital outputs	
 between the channels 	Yes; Optocoupler
 between the channels, in groups of 	5
Permissible potential difference	
between different circuits	500 V DC between 24 V DC and 5 V DC
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
• 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.

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	Yes
Dimensions	
Width	120.5 mm
Height	80 mm
Depth	62 mm
Weights	
Weight, approx.	360 g
last modified:	08/12/2017