SIEMENS

Data sheet

6ES7214-1BD23-0XB0

Spare part SIMATIC S7-200, CPU 224 Compact unit, AC power supply 14 DI DC/10 DO relay, 8/12 KB progr./8 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 ourrent	
Input current Inrush current, max.	20 A; at 264 V
maon oanont, max.	2071, 41.201 1

Encoder supply 24 V encoder supply 24 V encoder supply 24 V es; Permissible range: 20.4V to 28.8V Short-circuit protection Output current, max. 280 mA Power loss Power loss, typ. 10 W Memory Number of memory modules (optional) integrated (for program) integrated (for data) Backup Present Yes; Permissible range: 20.4V to 28.8V Yes; Permissible range: 20.4V to 28.8V Yes; electronic at 280 mA 280 mA Power loss Power loss Power loss Unique to the fill of		000 4 001 400 4 (040) 001 000 4 (400) 0 1
Encoder supply 24 V encoder supply 24 V encoder supply 24 V yes; electronic at 280 mA South-circuit protection 4 Ves; electronic at 280 mA Power loss Power loss, typ. 10 W Memory Number of memory modules (optional) 5 integrated (for program) 6 integrated (for data) 8 kbyte Backup 9 present Yes; Permissible range: 20.4V to 28.8V Yes; electronic at 280 mA 280 mA 10 W Memory 10 W Memory 11 pluggable memory module, content identical with integral EEPROM; can additionally store recipes, data logs and other files kbyte Backup 9 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, programmable via CPU; data: Entire DB 1 loaded from PG/PC maintenance-free via high-performance capacitor; optional battery for long-term buffering Battery Backup battery 8 Backup battery 8 Backup battery 9 Backup battery 100 h; (min. 70 h at 40 °C); 200 days (typ.) with optional battery module CPU processing times for bit operations, max. 100 h; (min. 70 h at 40 °C); 200 days (typ.) with optional battery module CPU processing times For bumber 256 Retentivity - adjustable - lower limit - upper limit - uppe	from supply voltage L1, max.	200 mA; 30 to 100 mA (240 V); 60 to 200 mA (120 V); output
24 V encoder supply 24 V Short-circuit protection Short-circuit protection Yes; electronic at 280 mA 280 mA Power loss Power loss, typ. 10 W Memory Number of memory modules (optional) EEPROM; can additionally store recipes, data logs and other files Work memory integrated (for program) integrated (for data) EEPROM; an additionally store recipes, data logs and other files Backup present Yes; Program: Entire program maintenance-free on integral EEPROM, programmable via CPU, data: Entire DB 1 loaded from EEPROM, programmable via CPU, data: Entire DB 1 loaded from PG/PC maintenance-free on integral EEPROM, current values of DB 1 fin RAM, retentive memory bits, timers, counters, etc. maintenance-free via high-performance capacitor; optional battery for long-term buffering Battery Backup battery Backup battery Backup battery Packup time, max. 100 h; (min. 70 h at 40 °C); 200 days (typ.) with optional battery module CPU processing times for bit operations, max. 256 Retentivity Yes; via high-performance capacitor or battery - adjustable - lower limit - upper limit 256 Counting range - lower limit - upper limit		current for expansion modules (5 v bo) 600 mA
Yes; Permissible range: 20.4V to 28.8V Short-circuit protection Output current, max. 280 mA Power loss. Power loss, typ. 10 W Memory Number of memory modules (optional) integrated (for program) integrated (for data) integrated (for data) integrated (for data) Backup present Yes; Program: Entire program maintenance-free on integral EEPROM, grammable 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 Backup battery Backup batte		
Short-circuit protection Output current, max. Power loss Power loss, typ. It plugable memory module, content identical with integral EEPROM; can additionally store recipes, data logs and other files Work memory It plugable memory module, content identical with integral EEPROM; can additionally store recipes, data logs and other files work memory It plugable memory module, content identical with integral EEPROM; can additionally store recipes, data logs and other files work memory It is byte; 8 KB with active run-time edit Repromise and the store run-ti		
Power loss Power loss typ. 10 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) 12 kbyte; 8 KB with active run-time edit 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 battery Backup battery Backup time, max. 100 h; (min. 70 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	• 24 V	Yes; Permissible range: 20.4V to 28.8V
Power loss, typ. Power loss, typ. 10 W	Short-circuit protection	Yes; electronic at 280 mA
Power loss, typ. Memory	 Output current, max. 	280 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) • 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 °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 — lower limit — upper limit 256 Counting range — lower limit — upper limit 0 32 767 S7 times • Number 256	Power loss	
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) • integrated (for data) 8 kbyte Present Yes; Program: Entire program maintenance-free on integral EEPROM, programmable via CPU; data: Entire DB 1 loaded from PG/PC maintenance-free in 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 Backup battery Backup battery Backup time, max. 100 h; (min. 70 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 — lower limit — upper limit 256 Counting range — lower limit — upper limit 0 32 767 S7 times • Number 256	Power loss, typ.	10 W
EEPROM; can additionally store recipes, data logs and other files Work memory • integrated (for program) • integrated (for data) 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 Backup battery • Backup time, max. 100 h; (min. 70 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 — lower limit — upper limit 256 Counting range — lower limit — upper limit 0 32 767 S7 times • Number 256	Memory	
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• integrated (for data) 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 Backup battery • Backup time, max. 100 h; (min. 70 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 • Number 256 Retentivity — adjustable — lower limit — upper limit 256 Counting range — lower limit — upper limit 0 32 767 S7 times • Number 256	Work memory	
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 Backup battery • Backup time, max. 100 h; (min. 70 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 • Number 256 Retentivity — adjustable — lower limit — upper limit 256 Counting range — lower limit — upper limit 0 32 767 S7 times • Number 256	• integrated (for program)	12 kbyte; 8 KB with active run-time edit
Persent 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 Backup battery Backup time, max. 100 h; (min. 70 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 Number S256 Retentivity — adjustable — lower limit — upper limit — 256 S7 times Number	• integrated (for data)	8 kbyte
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 Backup battery Backup time, max. 100 h; (min. 70 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 S66 Retentivity - adjustable - lower limit - upper limit 256 Counting range - lower limit - upper limit 0 32 767 S7 times Number 256	Backup	
Backup battery • Backup time, max. 100 h; (min. 70 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 — lower limit — upper limit — 32 767 S7 times • Number 256	• present	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
Backup time, max. 100 h; (min. 70 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 Adjustable Lower limit Lupper limit Lupper limit Lupper limit Dupper limit Ounter limit Lupper limit Dupper limit S7 times Number 256	Battery	
module CPU processing times for bit operations, max. 0.22 µs Counters, timers and their retentivity S7 counter ● Number Adjustable — adjustable — lower limit — upper limit — 256 Counting range — lower limit — upper limit — 256 S7 times ● Number	Backup battery	
for bit operations, max. Counters, timers and their retentivity S7 counter Number Adjustable Lower limit Lupper limit	● Backup time, max.	
for bit operations, max. Counters, timers and their retentivity S7 counter Number Adjustable Lower limit Lupper limit	CPU processing times	
S7 counter ● Number 256 Retentivity Yes; via high-performance capacitor or battery — lower limit 1 — upper limit 256 Counting range 0 — lower limit 0 — upper limit 32 767 S7 times Number • Number		0.22 μs
● Number 256 Retentivity Yes; via high-performance capacitor or battery — lower limit 1 — upper limit 256 Counting range 0 — lower limit 0 — upper limit 32 767 S7 times Number P Number	Counters, timers and their retentivity	
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 — adjustable — lower limit — upper limit — upper limit — lower limit — lower limit — lower limit — upper limit — upper limit — upper limit 32 767 S7 times Number 256 	Number	256
— lower limit 1 — upper limit 256 Counting range 0 — lower limit 32 767 S7 times Number	Retentivity	
— upper limit 256 Counting range 0 — lower limit 32 767 S7 times Number ● Number 256	— adjustable	Yes; via high-performance capacitor or battery
Counting range — lower limit — upper limit S7 times ● Number O 32 767 256	— lower limit	1
— lower limit 0 — upper limit 32 767 S7 times ■ Number 256	— upper limit	256
— upper limit 32 767 S7 times ● Number 256	Counting range	
— upper limit 32 767 S7 times ■ Number 256	— lower limit	0
S7 times ● Number 256	— upper limit	32 767
• Number 256	· ·	
		256

— adjustable	Yes; via high-performance capacitor or battery 64
— upper limit	04
Time range	1 ms
— 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
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
	0 to 112 in EEPROM, adjustable
of which retentive without battery	0 to 112 iii EEi Now, adjustable
Hardware configuration	
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	
 Analog inputs/outputs, max. 	35; max. 28 inputs and 7 outputs (EM) or max. 0 inputs and 14 outputs (EM)
 Digital inputs/outputs, max. 	168; max. 94 inputs and 74 outputs (CPU + EM)
 AS-Interface inputs/outputs, max. 	62; AS-Interface A/B slaves (CP 243-2)
Digital inputs	
Number of digital inputs	14
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.	0.2 ms 12.8 ms
— at "0" to "1", max. for interrupt inputs	
for interrupt inputs	12.8 ms
for interrupt inputs — parameterizable	12.8 ms
for interrupt inputs — parameterizable for counter/technological functions	12.8 ms Yes; I 0.0 to I 0.3

• unshielded, max.	300 m; not for high-speed signals
Digital outputs	
Number of digital outputs	10; Relays
Short-circuit protection	No; to be provided externally
Switching capacity of the outputs	
• with resistive load, max.	2 A
● on lamp load, max.	200 W; 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
Switching frequency	
• of the pulse outputs, with resistive load, max.	1 Hz
Total current of the outputs (per group)	
all mounting positions	
— up to 40 °C, max.	10 A
horizontal installation	
— up to 55 °C, max.	10 A
Relay outputs	
Number of relay outputs, integrated	10
 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	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

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

• shielded, max.

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 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 	6 and 8
Potential separation digital outputs	
between the channels	Yes; Relays
• between the channels, in groups of	3 and 4
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
 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	
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.	410 g

last modified: 04/19/2018