SIEMENS

Data sheet   **6ES7214-2BD23-0XB0**

Spare part SIMATIC S7-200, CPU 224XP Compact unit, AC power supply 14DI DC/10DO relay, 2 AI, 1 AO, 12/16 KB progr./10 KB data, 2 PPI/user-programmable interface

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.	220 mA; 35 to 100 mA (240 V); 70 to 220 mA (120 V); output current for expansion modules (5 V DC) 600 mA
Encoder supply	
24 V encoder supply	
● 24 V	Yes; Permissible range: 20.4V to 28.8V
● Short-circuit protection	Yes; electronic at 280 mA
● Output current, max.	280 mA
Power loss	
Power loss, typ.	11 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)	16 kbyte; 12 KB with active run-time edit
● integrated (for data)	10 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	

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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
	Counting range	
	— lower limit	0
	— upper limit	32 767
S7 times		
	● Number	256
	Retentivity	
	— adjustable	Yes; via high-performance capacitor or battery
	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		
	● Size, 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.		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.	38; 2 onboard inputs and 1 output, also 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"	0V to 5V; 0V to 1V (I0.3 to I0.5)
	● for signal "1"	min. 15 V; min. 4 V (I 0.3 to I 0.5)
Input current		
	● for signal "1", typ.	2.5 mA; 8 mA for I0.3 to I0.5
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 1.5) up to 200 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		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	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 sensor), max.	1 mA
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
2. Interface	
Interface type	Integrated RS 485 interface
Protocols	
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Integrated Functions	
Counter	
● Number of counters	6; High-speed counters (2 to 200 kHz and 4 to 30 kHz), 32 bit (incl. sign), can be used as up/down counters or for connecting incremental encoders with 2 pulse trains offset by 90° (max. 1 to 100 kHz and 3 to 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, max.	200 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	
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	
Plug-in I/O terminals	Yes
Dimensions	
Width	140 mm
Height	80 mm
Depth	62 mm
Weights	
Weight, approx.	440 g
Classifications	

		Version	Classification
	eClass	14	27-24-22-07
	eClass	12	27-24-22-07
	eClass	9.1	27-24-22-07
	eClass	9	27-24-22-07
	eClass	8	27-24-22-07
	eClass	7.1	27-24-22-07
	eClass	6	27-24-22-07
	ETIM	9	EC000236
	ETIM	8	EC000236

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ETIM	7	EC000236
IDEA	4	3565
UNSPSC	15	32-15-17-05

Approvals / Certificates

General Product Approval	For use in hazardous locations	Marine / Shipping			
CE EG-Konf.	FM	BUREAU VERITAS	DNV	GL	Lloyd's Register LRS

Marine / Shipping

NK / Nippon Kaiji Kyokai	RMRS	CCS (China Classification Society)

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