SIEMENS

Data sheet

6AG1214-1AD23-2XB0

SPARE PART SIPLUS S7-200 CPU224 -25...+70 DGR C BASED ON 6ES7214-1AD23-0XB0 DC / 14 DI / 10 DO



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 °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
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	0
— upper limit	32 767
S7 times	
• Number	256
of which retentive with battery	
— 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 finited output current, the use of expansion modules may be limited. connectable programming devices/PCs SIMATIC PC/PC, standard PC Expansion modules 40: the finited output current, the use of expansion modules may be limited. • Analog inputs/outputs, max. 35; max. 28 inputs and 7 outputs (EM) or max. 0 inputs and 14 outputs (FM). • Digital inputs/outputs, max. 168; max. 94 inputs and 74 outputs (CPU + EM). • Analog inputs/outputs, max. 168; max. 94 inputs and 74 outputs (CPU + EM). • Optical inputs 14 Source/sink input Yes: optionally, per group Input voltage 9 • 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) 7 for signal *1" 0.2 ms - parameterizable Yes; all - at *0" to *1", max. 12.8 ms for interrupt inputs - parameterizable - parameterizable Yes; (E 0.0 to E 1.5) 30 kHz	 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. outputs (EM) Digital inputs and 7 outputs (EM) or max. 0 inputs and 14 outputs (EM) • Digital inputs/outputs, max. 95; max. 28 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) for conter/redinologial functions - parameterizable Yes; il.0.0 to 10.3 for conter/redinologial functions - parameterizable - parameterizable Yes; il.0.0 to 1.0.3 for conter/redinologial functions - parameterizable - parameterizable Yes; il.0.0 to 1.0.3 for conter/redinologial functions<	• of which retentive without battery	0 to 112 in EEPROM, adjustable
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• 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; 10.0 to 1 0.3 for counter/technological functions - - parameterizable Yes; (E 0.0 to E 1.5) 30 kHz Cable length 500 m; Standard input: 500 m, high-speed counters: 50 m • unshielded, max. 500 m; ot for high-speed signals 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 • on lamp load, max. 5 W	• for signal "1"	min. 15 V
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for interrupt inputs	— at "0" to "1", min.	0.2 ms
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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		
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	
Limitation of inductive shutdown voltage to 1 W Switching capacity of the outputs 0.75 A • with resistive load, max. 0.75 A • on lamp load, max. 5 W		10; Transistor
Switching capacity of the outputs • with resistive load, max. • on lamp load, max. 5 W	Short-circuit protection	No; to be provided externally
 with resistive load, max. on lamp load, max. 5 W 	Limitation of inductive shutdown voltage to	1 W
• on lamp load, max. 5 W	Switching capacity of the outputs	
	• with resistive load, max.	0.75 A
Output voltage	• on lamp load, max.	5 W
	Output voltage	

● 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
	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. 	-25 °C; = Tmin
 horizontal installation, max. 	70 °C; = Tmax
 vertical installation, min. 	-25 °C; = Tmin
 vertical installation, max. 	45 °C; = Tmax
Extended ambient conditions	
 relative to ambient temperature-atmospheric 	Tmin Tmax at 1080 hPa 795 hPa (-1000 m +2000 m) //
pressure-installation altitude	Tmin (Tmax - 10K) at 795 hPa 658 hPa (+2000 m +3500 m) // Tmin (Tmax - 20K) at 658 hPa 540 hPa (+3500 m +5000 m)

Relative humidity	
 With condensation, tested in accordance with IEC 60068-2-38, max. 	100 %; RH incl. condensation/frost (no commissioning under condensation conditions)
Resistance	
 against biologically active substances / conformity with EN 60721-3-3 	Yes; Class 3B2 mold, fungus and dry rot spores (with the exception of fauna); Class 3B3 on request
 against chemically active substances / conformity with EN 60721-3-3 	Yes; Class 3C4 (RH < 75%) incl. salt spray according to EN 60068-2-52 (degree of severity 3). The supplied connector covers must remain on the unused interfaces during operation!
 against mechanically active substances / conformity with EN 60721-3-3 	Yes; Class 3S4 incl. sand, dust. The supplied connector covers must remain on the unused interfaces during operation!
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:	05/31/2017