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 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.	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.	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 1.5) 30 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; Transistor
Short-circuit protection	No; to be provided externally
Limitation of inductive shutdown voltage to	1 W
Switching capacity of the outputs	
• with resistive load, max.	0.75 A
• 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 µA
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 µs; of the standard outputs, max. (Q 0.2 to Q 1.1) 10 µs; 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 sensor), max.	1 mA

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 pressure-installation altitude	Tmin ... Tmax at 1080 hPa ... 795 hPa (-1000 m ... +2000 m) // 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