

# SIEMENS

## Product data sheet

## 6AG1212-1BB23-2XB0

SIPLUS S7-200 CPU222 -25...+70 DGR C BASED ON  
6ES7212-1BB23-0XB0 AC / 8 DI / 6 RO

Supply voltage	
120 V AC	Yes
230 V AC	Yes
Line frequency	
Frequency of the supply voltage	63 Hz
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 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.	140 mA ; 20 to 70 mA (240 V); 40 to 140 mA (120 V); output current for expansion modules (5 V DC) 340 mA
Encoder supply	
24 V encoder supply	
24 V	Yes ; Permissible range: 20.4 to 28.8 V
Short-circuit protection	Yes ; electronic at 600 mA
Output current, max.	180 mA
Backup battery	
Battery operation	

Backup time, max.	50 h ; (min. 8 h at 40 °C); 200 days (typ.) with optional battery module
<b>Memory</b>	
Number of memory modules (optional)	1 ; pluggable memory module, content identical with integral EEPROM; can additionally store recipes, data logs and other files
<b>Data and program memory</b>	
Data memory, max.	2 kbyte
Program memory, max.	4 kbyte
<b>Backup</b>	
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
<b>CPU processing times</b>	
for bit operations, max.	0.22 µs
<b>Counters, timers and their retentivity</b>	
<b>S7 counter</b>	
Number	256
of which retentive with battery	
adjustable	Yes ; via high-performance capacitor or battery
lower limit	1
upper limit	256
<b>Counting range</b>	
lower limit	0
upper limit	32767
<b>S7 times</b>	
Number	256
of which retentive with battery	
adjustable	Yes ; via high-performance capacitor or battery
upper limit	64
<b>Time range</b>	
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
<b>Data areas and their retentivity</b>	
<b>Flag</b>	
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
<b>Hardware configuration</b>	
Expansion devices, max.	2 ; 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
<b>Expansion modules</b>	
Analog inputs/outputs, max.	10 ; max. 8 inputs and 2 outputs (EM) or max. 0 inputs and 4 outputs (EM)
Digital inputs/outputs, max.	78 ; max. 40 inputs and 38 outputs (CPU + EM)
AS-Interface inputs/outputs max.	62 ; AS-Interface A/B slaves (CP 243-2)
<b>Digital inputs</b>	
Number/binary inputs	8
m/p-reading	Yes ; optionally, per group
<b>Input voltage</b>	
Rated value, DC	24 V
for signal "0"	0 to 5 V
for signal "1"	min. 15 V
<b>Input current</b>	
for signal "1", typ.	2.5 mA
<b>Input delay (for rated value of input voltage)</b>	
<b>for standard inputs</b>	
Parameterizable	Yes ; all
at "0" to "1", min.	0.2 ms
at "0" to "1", max.	12.8 ms
<b>for interrupt inputs</b>	
Parameterizable	Yes ; I 0.0 to I 0.3

for counter/technological functions	
Parameterizable	Yes ; (E0.0 to E0.5) 30 kHz
Cable length	
Cable length, shielded, max.	500 m ; Standard input: 500 m, high-speed counters: 50 m
Cable length unshielded, max.	300 m ; not for high-speed signals
Digital outputs	
Number/binary outputs	6 ; Relay
Functionality/short-circuit strength	No ; to be provided externally
Switching capacity of the outputs	
with resistive load, max.	2 A
on lamp load, max.	30 W DC; 200 W 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 2 outputs	
for increased power	No
Aggregate current of 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 operating cycles, max.	10000000 ; mechanically 10 million, at rated load voltage 100,000
Cable length	
Cable length, shielded, max.	500 m
Cable length unshielded, max.	150 m
Analog inputs	

Number of analog potentiometers	1 ; Analog potentiometer; resolution 8 bit
<b>Encoder</b>	
<b>Connectable encoders</b>	
2-wire sensor	Yes
Permissible quiescent current (2-wire sensor), max.	1 mA
<b>1st interface</b>	
Type of interface	Integrated RS 485 interface
Physics	RS 485
<b>Functionality</b>	
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 kbit/s; the PC/PPI cable can also be used as RS232/RS485 converter
<b>MPI</b>	
Transmission rate, max.	187.5 kbit/s
Transmission rate, min.	19.2 kbit/s
<b>Integrated Functions</b>	
Number of counters	4 ; 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.
Counter frequency (counter) max.	30 kHz
Number of alarm inputs	4 ; 4 rising edges and/or 4 falling edges

<b>Galvanic isolation</b>	
<b>Galvanic isolation digital inputs</b>	
between the channels	Yes
between the channels, in groups of	4
<b>Galvanic isolation digital outputs</b>	
between the channels	Yes ; Relay
between the channels, in groups of	3
<b>Permissible potential difference</b>	
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
<b>Degree and class of protection</b>	
IP20	Yes
<b>Ambient conditions</b>	
<b>Operating temperature</b>	
vertical installation, min.	-25 °C ; = Tmin
vertical installation, max.	45 °C ; = Tmax
horizontal installation, min.	-25 °C ; = Tmin
horizontal installation, max.	70 °C ; = Tmax
<b>Extended ambient conditions</b>	
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)
<b>Relative humidity</b>	
with condensation / maximum	100 % ; RH incl. condensation/frost (no commissioning under condensation conditions)
<b>Resistance</b>	
to biologically active substances / conformity with EN 60721-3-3	Yes ; Class 3B2 mold, fungus and dry rot spores (with the exception of fauna). The supplied connector covers must remain on the unused interfaces during operation!
to chemically active substances / conformity with EN 60721-3-3	Yes
to mechanically active substances / conformity with EN 60721-3-3	Yes
<b>Configuration</b>	

programming	
Programming language	
LAD	Yes
FBD	Yes
STL	Yes
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
Know-how protection	
User program protection/password protection	Yes ; 3-stage password protection
Connection method	
Plug-in I/O terminals	No
Dimensions	
Width	90 mm
Height	80 mm
Depth	62 mm
Weight	
Weight, approx.	310 g
Status	Jul 17, 2012