

# SIEMENS

## Product data sheet

## 6ES7212-1BB23-0XB0



SIMATIC S7-200, CPU 222 COMPACT UNIT,  
AC POWER SUPPLY 8 DI DC/6 DO RELAY 4 KB  
CODE/2 KB DATA,  
PROFIBUS DP EXTENDABLE

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
Memory	
Number of memory modules (optional)	1 ; pluggable memory module, content identical with integral EEPROM; can additionally store recipes, data logs and other files
Data and program memory	
Data memory, max.	2 kbyte
Program memory, max.	4 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
CPU processing times	
for bit operations, max.	0.22 µs
Counters, timers and their retentivity	
S7 counter	
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
<b>of which retentive with battery</b>	
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
<b>for counter/technological functions</b>	
Parameterizable	Yes ; (E0.0 to E0.5) 30 kHz
<b>Cable length</b>	
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
<b>Digital outputs</b>	
Number/binary outputs	6 ; Relay
Functionality/short-circuit strength	No ; to be provided externally
<b>Switching capacity of the outputs</b>	
with resistive load, max.	2 A
on lamp load, max.	30 W DC; 200 W AC
<b>Output voltage</b>	
for signal "1", min.	L+/L1
<b>Output current</b>	
for signal "1" rated value	2 A
for signal "0" residual current, max.	0 mA
<b>Output delay with resistive load</b>	
"0" to "1", max.	10 ms ; all outputs
"1" to "0", max.	10 ms ; all outputs
<b>Parallel switching of 2 outputs</b>	
for increased power	No
<b>Aggregate current of outputs (per group)</b>	

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
Encoder	
Connectable encoders	
2-wire sensor	Yes
Permissible quiescent current (2-wire sensor), max.	1 mA
1st interface	
Type of interface	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 kbit/s; the PC/PPI cable can also be used as RS232/RS485 converter
MPI	
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>	
Environmental conditions	For further environmental conditions, see "Automation System S7-200, System Manual"
<b>Operating temperature</b>	
vertical installation, min.	0 °C
vertical installation, max.	45 °C
horizontal installation, min.	0 °C
horizontal installation, max.	55 °C
<b>Air pressure</b>	
permissible range, min.	860 hPa
permissible range, max.	1080 hPa
<b>Relative humidity</b>	

Operation, min.	5 %
Operation, max.	95 % ; RH class 2 in accordance with IEC 1131-2
<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
<b>Know-how protection</b>	
User program protection/password protection	Yes ; 3-stage password protection
<b>Connection method</b>	
Plug-in I/O terminals	No
<b>Dimensions</b>	
Width	90 mm
Height	80 mm
Depth	62 mm
<b>Weight</b>	
Weight, approx.	310 g
Status	Jul 17, 2012