SIEMENS

Product data sheet 6ES7214-1BD23-0XB0

SIMATIC S7-200, CPU 224, COMPACT UNIT,
AC POWER SUPPLY 14 DI DC/10 DO, RELAY,
8/12 KB CODE/8 KB DATA,
PROFIBUS DP EXTENDABLE

Supply voltage	
Power supply / Input / Input voltage	
120 V AC	Yes
230 V AC	Yes
Power supply / Input / Line frequency	
permissible frequency range, upper limit	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
Power supply / Input / Input current	
Inrush current, max.	20 A ; at 264 V
from supply voltage L1, max.	200 mA ; 30 to 100 mA (240 V); 60 to 200 mA (120 V); output current for expansion modules (5 V DC) 600 mA
Encoder supply	
24 V encoder supply	
24 V	Yes ; permissible range: 20.4 bis 28.8 V
Short-circuit protection	Yes ; electronic at 280 mA
Output current, max.	280 mA
Backup battery	
Backup time, max.	100 h ; (min. 70 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.	8 Kibyte
Program memory, max.	12 Kibyte ; 8 KB with active run-time edit
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	
can be set	Yes ; via high-performance capacitor or battery
lower limit	1

upper limit	256
Counting range	
lower limit	0
upper limit	32767
S7 times	
Number	256
of which retentive with battery	
can be set	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	
Expansion devices, 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
Configuration / 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
m/p-reading	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 ; (E0.0 to E1.5) 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 of digital outputs	10 ; Relay
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 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
Switching frequency	

of the pulse outputs, with resistive load, max.	1 Hz
Aggregate current of outputs (per group)	
up to 40 °C, max.	10 A
horizontal installation	
up to 55 °C, max.	10 A
Cable length	
Cable length, shielded, max.	500 m
Cable length unshielded, max.	150 m
Relay outputs	
Number of operating cycles	10000000 ; mechanically 10 million, at rated load voltage 100,000
Analog inputs	
Number of analog potentiometers	2 ; Analog potentiometer; resolution 8 bit
Encoder	
Connectable encoders	
2-wire BEROS	Yes
permissible quiescent current (2-wire BEROS), 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 communications is possible in the MPI network with restrictions; transmission rates: 19.2 / 187.5 kbit/s
PPI	Yes ; with PPI protocol for programming functions, HMI functions (TD 200, OP), S7-200-internal CPU/CPU communications; 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
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.
Counter frequency (counter) max.	30 kHz
Number of alarm inputs	4 ; 4 rising edges and/or 4 falling edges
Galvanic isolation	
Galvanic isolation digital inputs	
between the channels	Yes
between the channels, in groups of	6 and 8
Galvanic isolation digital outputs	
between the channels	Yes ; Relay
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
environmental conditions	
Environmental conditions	For further environmental conditions, see "Automation System S7-200, System Manual"
Operating temperature	
vertical installation, min.	0 °C
vertical installation, max.	45 °C
horizontal installation, min.	0 °C
horizontal installation, max.	55 °C
Air pressure	
permissible range, min.	860 hPa
permissible range, min.	860 hPa
permissible range, max.	1080 hPa
permissible range, max.	1080 hPa

Relative humidity	
Operation, min.	5 %
Operation, max.	95 % ; RH class 2 in accordance with IEC 1131-2
Degree and class of protection	
IP20	Yes
Project engineering	
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
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User program protection/password protection	Yes ; 3-stage password protection
Connection method	
Plug-in I/O terminals	Yes
Dimensions and weight	
Dimensions	
Width	120.5 mm
Height	80 mm
Depth	62 mm
Weight	
Weight, approx.	410 g
Status	May 23, 2011