



SIMATIC S7-200, CPU 224XP COMPACT UNIT, AC POWER SUPPLY 14DI DC/10DO RELAY, 2AI, 1AO, 12/16 KB CODE/10 KB DATA, 2 PPI/FREEPORT PORTS

Supply voltage	
120 V AC	Yes
230 V AC	Yes
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 V AC 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.	220 mA; 35 to 100 mA (240 V); 70 to 220 mA (120 V); output current for expansion modules (5 V DC) 600 mA

Encoder supply

24 V encoder supply

• 24 V	Yes; Permissible range: 20.4V to 28.8V
• short-circuit protection	Yes; electronic at 280 mA
• Output current, max.	280 mA

Memory

Type of memory	other
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.	10 kbyte
• Program memory, max.	16 kbyte; 12 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
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Battery

Backup battery

• Backup time, max.	100 h; (min. 70 h at 40 °C); 200 days (typ.) with optional battery module
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CPU processing times

for bit operations, max.	0.22 µs
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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	
— 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
Expansion modules	
• Analog inputs/outputs, max.	38; 2 onboard inputs and 1 output, also 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; 0 to 1 V (I 0.3 to I 0.5)
• for signal "1"	min. 15 V; min. 4 V (I 0.3 to I 0.5)
Input current	
• for signal "1", typ.	2.5 mA; 8 mA for I0.3 to I0.5
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) up to 200 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; Relays
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 with DC, 200 W with 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)	
all mounting positions	
— up to 40 °C, max.	10 A
horizontal installation	
— up to 55 °C, max.	10 A
Relay outputs	
• Max. number of relay outputs, integrated	10
• Number of operating cycles, max.	10 000 000; 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	2; Analog potentiometer; resolution 8 bit
Encoder	
Connectable encoders	
<ul style="list-style-type: none"> • 2-wire sensor 	Yes
<ul style="list-style-type: none"> — Permissible quiescent current (2-wire sensor), max. 	1 mA
1st interface	
Interface type	Integrated RS 485 interface
Physics	RS 485
Functionality	
<ul style="list-style-type: none"> • 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
<ul style="list-style-type: none"> • 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
<ul style="list-style-type: none"> • 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	
<ul style="list-style-type: none"> • Transmission rate, min. 	19.2 kbit/s
<ul style="list-style-type: none"> • Transmission rate, max. 	187.5 kbit/s
2nd interface	
Interface type	Integrated RS 485 interface
Physics	RS 485
Functionality	
<ul style="list-style-type: none"> • 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
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MPI	

• Transmission rate, min.	19.2 kbit/s
• Transmission rate, max.	187.5 kbit/s

Integrated Functions

Number of counters	6; High-speed counters (2 to 200 kHz and 4 to 30 kHz), 32 bits (incl. sign), can be used as up/down counters or for connecting incremental encoders with 2 pulse trains offset by 90° (max. 1 to 100 kHz and 3 to 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.	200 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; Relays
• 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
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Degree and class of protection

Degree of protection to EN 60529

• IP20	Yes
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Ambient conditions

Environmental conditions	For further environmental conditions, see "Automation System S7-200, System Manual"
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Operating temperature

• horizontal installation, min.	0 °C
• horizontal installation, max.	55 °C
• vertical installation, min.	0 °C
• vertical installation, max.	45 °C

Air pressure

• permissible range, min.	860 hPa
• permissible range, max.	1 080 hPa

Relative humidity

• Operation, min.	5 %
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- Operation, max.

95 %; RH class 2 in accordance with IEC 1131-2

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

140 mm

Height

80 mm

Depth

62 mm

Weights

Weight, approx.

440 g

last modified:

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