

\*\*\*Spare part\*\*\* SIMATIC S7-200, CPU 224XP Compact unit, DC power supply 14 DI DC/10 DO DC, 2 AI, 1 AO, 12/16 KB progr./10 KB data, 2 PPI/user-programmable interface



Figure similar

Supply voltage	
Rated value (DC)	
<ul style="list-style-type: none"> <li>24 V DC</li> </ul>	Yes
Load voltage L+	
<ul style="list-style-type: none"> <li>Rated value (DC)</li> </ul>	24 V
<ul style="list-style-type: none"> <li>permissible range, lower limit (DC)</li> </ul>	20.4 V
<ul style="list-style-type: none"> <li>permissible range, upper limit (DC)</li> </ul>	28.8 V
Input current	
Inrush current, max.	12 A; at 28.8 V
from supply voltage L+, max.	900 mA; 120 mA to 900 mA, output current for expansion modules (5 V DC) 660 mA
Encoder supply	
24 V encoder supply	
<ul style="list-style-type: none"> <li>24 V</li> </ul>	Yes; permissible range: 15.4 to 28.8 V
<ul style="list-style-type: none"> <li>Short-circuit protection</li> </ul>	Yes; electronic at 280 mA
<ul style="list-style-type: none"> <li>Output current, max.</li> </ul>	280 mA
Power loss	
Power loss, typ.	8 W
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	
<ul style="list-style-type: none"> <li>integrated (for program)</li> </ul>	16 kbyte; 12 KB with active run-time edit
<ul style="list-style-type: none"> <li>integrated (for data)</li> </ul>	10 kbyte
Backup	
<ul style="list-style-type: none"> <li>present</li> </ul>	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	
<ul style="list-style-type: none"> <li>Backup time, max.</li> </ul>	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	
<ul style="list-style-type: none"> <li>Number</li> </ul>	256
Retentivity	

— adjustable	Yes; via high-performance capacitor or battery
— lower limit	1
— upper limit	256
<b>Counting range</b>	
— lower limit	0
— upper limit	32 767
<b>S7 times</b>	
• Number	256
<b>Retentivity</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>	
• Size, 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>	
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
<b>Expansion modules</b>	
• 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)
<b>Digital inputs</b>	
Number of digital inputs	14
Source/sink input	Yes; optionally, per group
<b>Input voltage</b>	
• Rated value (DC)	24 V
• for signal "0"	0V to 5V; 0V to 1V (I 0.3 to I 0.5)
• for signal "1"	min. 15 V; min. 4 V (I 0.3 to I 0.5)
<b>Input current</b>	
• for signal "1", typ.	2.5 mA; 8 mA for I 0.3 to I 0.5
<b>Input delay (for rated value of input voltage)</b>	
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 technological functions	
— parameterizable	Yes; (E 0.0 to E 1.5) up to 200 kHz
<b>Cable length</b>	
• shielded, max.	500 m; Standard input: 500 m, high-speed counters: 50 m
• unshielded, max.	300 m; not for high-speed signals
<b>Digital outputs</b>	
Number of digital outputs	10; Transistor
Short-circuit protection	No; to be provided externally
Limitation of inductive shutdown voltage to	1 W
<b>Switching capacity of the outputs</b>	
• with resistive load, max.	0.75 A
• on lamp load, max.	5 W
<b>Output voltage</b>	
• for signal "1", min.	L+ (-0.4 V (5 V / 20.4 V for A 0.0 to A 0.4; 20.4 V A 0.5 to A1.1))

<b>Output current</b>	
<ul style="list-style-type: none"> <li>• for signal "1" rated value</li> <li>• for signal "0" residual current, max.</li> </ul>	<p>750 mA</p> <p>10 µA</p>
<b>Output delay with resistive load</b>	
<ul style="list-style-type: none"> <li>• "0" to "1", max.</li> <li>• "1" to "0", max.</li> </ul>	<p>15 µs; of the standard outputs, max. (Q 0.2 to Q 1.1) 15 µs; of the pulse outputs, max. (Q 0.0 to Q 0.1) 0.5 µs</p> <p>130 µs; of the standard outputs, max. (Q 0.2 to Q 1.1) 130 µs; of the pulse outputs, max. (Q 0.0 to Q 0.1) 1.5 µs</p>
<b>Parallel switching of two outputs</b>	
<ul style="list-style-type: none"> <li>• for uprating</li> </ul>	Yes
<b>Switching frequency</b>	
<ul style="list-style-type: none"> <li>• of the pulse outputs, with resistive load, max.</li> </ul>	100 kHz; Q0.0 to Q0.1
<b>Total current of the outputs (per group)</b>	
all mounting positions	
<ul style="list-style-type: none"> <li>— up to 40 °C, max.</li> </ul>	3.75 A
horizontal installation	
<ul style="list-style-type: none"> <li>— up to 55 °C, max.</li> </ul>	3.75 A
<b>Relay outputs</b>	
<ul style="list-style-type: none"> <li>• Number of relay outputs</li> </ul>	0
<b>Cable length</b>	
<ul style="list-style-type: none"> <li>• shielded, max.</li> <li>• unshielded, max.</li> </ul>	<p>500 m</p> <p>150 m</p>
<b>Analog inputs</b>	
Number of analog potentiometers	2; Analog potentiometer; resolution 8 bit
<b>Encoder</b>	
Connectable encoders	
<ul style="list-style-type: none"> <li>• 2-wire sensor</li> <li>— permissible quiescent current (2-wire sensor), max.</li> </ul>	<p>Yes</p> <p>1 mA</p>
<b>1. Interface</b>	
Interface type	Integrated RS 485 interface
Protocols	
<ul style="list-style-type: none"> <li>• MPI</li> <li>• PPI</li> <li>• serial data exchange</li> </ul>	<p>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</p> <p>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</p> <p>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</p>
MPI	
<ul style="list-style-type: none"> <li>• Transmission rate, min.</li> <li>• Transmission rate, max.</li> </ul>	<p>19.2 kbit/s</p> <p>187.5 kbit/s</p>
<b>2. Interface</b>	
Interface type	Integrated RS 485 interface
Protocols	
<ul style="list-style-type: none"> <li>• MPI</li> <li>• PPI</li> <li>• serial data exchange</li> </ul>	<p>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</p> <p>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</p> <p>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</p>
<b>Integrated Functions</b>	
Counter	
<ul style="list-style-type: none"> <li>• Number of counters</li> </ul>	6; High-speed counters (2 to 200 kHz and 4 to 30 kHz), 32 bit (incl. sign), can be used as up/down counters or for connecting incremental

• Counting frequency, max.	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. 200 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
<b>Potential separation</b>	
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
<b>Permissible potential difference</b>	
between different circuits	500 V DC between 24 V DC and 5 V DC
<b>Degree and class of protection</b>	
IP degree of protection	IP20
<b>Ambient conditions</b>	
Ambient temperature during operation	
• horizontal installation, min.	0 °C
• horizontal installation, max.	55 °C
• vertical installation, min.	0 °C
• vertical installation, max.	45 °C
Air pressure acc. to IEC 60068-2-13	
• permissible range, lower limit	860 hPa
• permissible range, upper limit	1 080 hPa
Relative humidity	
• Operation, min.	5 %
• Operation, max.	95 %; RH class 2 in accordance with IEC 1131-2
<b>configuration / header</b>	
configuration / programming / header	
• 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
<b>connection method / header</b>	
Plug-in I/O terminals	Yes
<b>Dimensions</b>	
Width	140 mm
Height	80 mm
Depth	62 mm
<b>Weights</b>	
Weight, approx.	390 g
<b>last modified:</b>	3/12/2021 