

\*\*\* SPARE PART\*\*\* SIMATIC S7-200, CPU 226 XM COMPACT  
UNIT, AC POWER SUPPLY 24 DI DC/16 DO RELAY, 16 KB  
CODE/10 KB DATA, 2 PPI/FREEPORT PORTS

Supply voltage	
Rated value (AC)	
• 120 V AC	Yes
• 230 V AC	Yes
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.	320 mA; 40 to 160 mA (240 V); 80 to 320 mA (120 V); output current for expansion modules (5 V DC) 1000 mA
Encoder supply	
24 V encoder supply	
• 24 V	Yes; Permissible range: 20.4V to 28.8V
• Short-circuit protection	Yes; electronic at 1.5 A
• Output current, max.	400 mA
Memory	
Number of memory modules (optional)	1; pluggable memory module, content identical with integral EEPROM
Work memory	
• integrated (for program)	16 kbyte
• integrated (for data)	10 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

## Battery

### Backup battery

- Backup time, max. 190 h; (min. 120 h at 40 °C); 200 days (typ.) with optional battery module

## CPU processing times

- for bit operations, max. 0.37 µs

## Counters, timers and their retentivity

### S7 counter

- Number 256

#### Retentivity

- adjustable 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

#### Retentivity

- adjustable Yes; via high-performance capacitor or battery
- upper limit 65

#### 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

- 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.	35; max. 28 inputs and 7 outputs (EM) or max. 0 inputs and 14 outputs (EM)
• Digital inputs/outputs, max.	148; max. 128 inputs and 120 outputs (CPU+EM)
• AS-Interface inputs/outputs, max.	31; AS-Interface slaves (CP 243-2)
<b>Digital inputs</b>	
Number of digital inputs	24
Source/sink input	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.	4 mA
<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 counter/technological functions	
— parameterizable	Yes; (E 0.0 to E 1.5) 30 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	16; Relays
Short-circuit protection	No; to be provided externally
<b>Switching capacity of the outputs</b>	
• with resistive load, max.	2 A
• on lamp load, max.	200 W; 30 W with DC, 200 W with 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

Total current of the outputs (per group)	
all mounting positions	
— up to 40 °C, max.	10 A
horizontal installation	
— up to 55 °C, max.	10 A
Relay outputs	
• Number of operating cycles, max.	10 000 000; mechanically 10 million, at rated load voltage 100 000
Cable length	
• shielded, max.	500 m
• unshielded, max.	150 m
Analog inputs	
Number of analog potentiometers	2; Analog potentiometer; resolution 8 bit
Encoder	
Connectable encoders	
• 2-wire sensor	Yes
— permissible quiescent current (2-wire sensor), max.	1 mA
1. Interface	
Interface type	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 kbps; the PC/PPI cable can also be used as RS 232/RS 485 converter
MPI	
• Transmission rate, min.	19.2 kbit/s
• Transmission rate, max.	187.5 kbit/s
2. Interface	
Interface type	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

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## 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.
Counting frequency (counter) max.	30 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

## Potential separation

Potential separation digital inputs	
• between the channels	Yes; Optocoupler
• between the channels, in groups of	13; 13 and 11
Potential separation digital outputs	
• between the channels	Yes; Relays
• between the channels, in groups of	4; 4, 5 and 7

## 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 acc. to EN 60529	
• IP20	Yes

## Ambient conditions

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.
- Operation, max.

5 %  
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  
196 mm
- Height  
80 mm
- Depth  
62 mm

## Weights

- Weight, approx.  
660 g

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