

\*\*\*Spare part\*\*\* SIMATIC S7-200, analog I/O EM 235, only for S7-22X CPU, 4 AI, +/-10 V DC; 1 AO, +/-10 V DC 12 bit converter



Input current	
from external supply (24 V DC), max.	60 mA
from backplane bus 5 V DC, max.	30 mA
Power loss	
Power loss, typ.	2 W
Analog inputs	
Number of analog inputs	4; Difference
permissible input voltage for voltage input (destruction limit), max.	30 V
permissible input current for current input (destruction limit), max.	32 mA
Input ranges	
• Voltage	Yes
• Current	Yes
• Thermocouple	No
• Resistance thermometer	No
• Resistance	No
Input ranges (rated values), voltages	

• 0 to +50 mV	Yes
• 0 to +100 mV	Yes
• 0 to +500 mV	Yes
• 0 to +1 V	Yes
• 0 to +5 V	Yes
• 0 to +10 V	Yes
• -1 V to +1 V	Yes
• -10 V to +10 V	Yes
• -100 mV to +100 mV	Yes
• -2.5 V to +2.5 V	Yes
• -25 mV to +25 mV	Yes
• -250 mV to +250 mV	Yes
• -5 V to +5 V	Yes
• -50 mV to +50 mV	Yes
• -500 mV to +500 mV	Yes
<b>Input ranges (rated values), currents</b>	
• 0 to 20 mA	Yes
<b>Thermocouple (TC)</b>	
Temperature compensation	
— parameterizable	No
<b>Analog outputs</b>	
Number of analog outputs	1
<b>Output ranges, voltage</b>	
• -10 V to +10 V	Yes
<b>Output ranges, current</b>	
• 0 to 20 mA	Yes
<b>Load impedance (in rated range of output)</b>	
• with voltage outputs, min.	5 k $\Omega$
• with current outputs, max.	0.5 k $\Omega$
<b>Analog value generation for the inputs</b>	
<b>Integration and conversion time/resolution per channel</b>	
• Resolution with overrange (bit including sign), max.	12 bit
• Basic conversion time (ms)	< 0.25 ms
• Interference voltage suppression for interference frequency f1 in Hz	40 dB, DC to 60 Hz
<b>Displayable conversion value range</b>	
• bipolar signals	-32 000 to +32 000
• unipolar signals	0 to 32 000
<b>Analog value generation for the outputs</b>	
<b>Integration and conversion time/resolution per channel</b>	

<ul style="list-style-type: none"> <li>Resolution with overrange (bit including sign), max.</li> </ul>	11 bit
<b>Settling time</b>	
<ul style="list-style-type: none"> <li>for voltage output</li> </ul>	100 $\mu$ s
<ul style="list-style-type: none"> <li>for current output</li> </ul>	2 ms
<b>Displayable conversion value range</b>	
<ul style="list-style-type: none"> <li>bipolar signals</li> </ul>	-32 000 to +32 000
<ul style="list-style-type: none"> <li>unipolar signals</li> </ul>	0 to 32 000
<b>Errors/accuracies</b>	
<b>Operational error limit in overall temperature range</b>	
<ul style="list-style-type: none"> <li>Voltage, relative to output range, (+/-)</li> </ul>	2 %
<ul style="list-style-type: none"> <li>Current, relative to output range, (+/-)</li> </ul>	2 %
<b>Basic error limit (operational limit at 25 °C)</b>	
<ul style="list-style-type: none"> <li>Voltage, relative to output range, (+/-)</li> </ul>	0.5 %
<ul style="list-style-type: none"> <li>Current, relative to output range, (+/-)</li> </ul>	0.5 %
<b>Interference voltage suppression for <math>f = n \times (f_1 \pm 1 \%)</math>, <math>f_1</math> = interference frequency</b>	
<ul style="list-style-type: none"> <li>Common mode voltage, max.</li> </ul>	12 V
<b>Interrupts/diagnostics/status information</b>	
<b>Diagnostics indication LED</b>	
<ul style="list-style-type: none"> <li>external fault EXTf (red)</li> </ul>	Yes
<b>Potential separation</b>	
<b>Potential separation analog inputs</b>	
<ul style="list-style-type: none"> <li>Potential separation analog inputs</li> </ul>	No
<b>Potential separation analog outputs</b>	
<ul style="list-style-type: none"> <li>Potential separation analog outputs</li> </ul>	No
<b>Connection method</b>	
Plug-in I/O terminals	No
<b>Dimensions</b>	
Width	71.2 mm
Height	80 mm
Depth	62 mm
<b>Weights</b>	
Weight, approx.	186 g
<b>last modified:</b>	09/03/2020