

SIMATIC S7-1200

Analog modules

SM 1234 analog input/output modules

Overview



- Analog inputs and outputs for the SIMATIC S7-1200
- With extremely short conversion times
- For connecting analog actuators and sensors without additional amplifiers
- For solving even more complex automation tasks

Technical specifications

	6ES7 234-4HE32-0XB0 SM 1234 A 14x13 bit AQ 2x14 bit
Supply voltage 24 V DC	Yes
Input current Current consumption, typ.	60 mA
from backplane bus 5 V DC, typ.	80 mA
Power losses Power loss, typ.	2 W
Analog inputs Number of analog inputs	4; Current or voltage differential inputs
permissible input frequency for current input (destruction limit), max.	± 35 V
permissible input voltage for voltage input (destruction limit), max.	35 V
permissible input current for voltage input (destruction limit), max.	40 mA
permissible input current for current input (destruction limit), max.	40 mA
Cycle time (all channels) max.	625 µs
Input ranges • Voltage • Current • Thermocouple • Resistance thermometer • Resistance	Yes; ±10 V, ±5 V, ±2.5 V Yes; 0 to 20 mA No No No
Input ranges (rated values), voltages • -10 V to +10 V • Input resistance (-10 V to +10 V) • -2.5 V to +2.5 V • Input resistance (-2.5 V to +2.5 V) • -5 V to +5 V • Input resistance (-5 V to +5 V)	Yes ≥9 MOhm Yes ≥9 MOhm Yes ≥9 MOhm

	6ES7 234-4HE32-0XB0 SM 1234 A 14x13 bit AQ 2x14 bit
Input ranges (rated values), currents • 0 to 20 mA • Input resistance (0 to 20 mA)	Yes 280 Ω
Thermocouple (TC) • Temperature compensation - Parameterizable	No
Analog outputs Number of analog outputs	2; Current or voltage
Output ranges, voltage • -10 to +10 V	Yes
Output ranges, current • 0 to 20 mA	Yes
Load impedance (in rated range of output) • with voltage outputs, min. • with current outputs, max.	1 000 Ω 600 Ω
Analog value creation Measurement principle	Differential
Integrations and conversion time/ resolution per channel • Resolution (incl. overrange) • Integration time, parameterizable • Interference voltage suppression for interference frequency f1 in Hz	Voltage: 14 bits; Current : 13 bits Yes 40 dB, DC to 60 V for interference frequency 50 / 60 Hz
Smoothing of measured values • Parameterizable • Step: None • Step: low • Step: Medium • Step: High	Yes Yes Yes Yes Yes

Technical specifications (continued)

6ES7 234-4HE32-0XB0 SM 1234 A I4x13 bit AQ 2x14 bit	
Errors/accuracies	
Temperature error (relative to input area)	25 °C ±0.1 % to 55 °C ±0.2 % total measurement range
Temperature error (relative to output area)	25 °C ±0.3% to 55 °C ±0.6% total measurement range
Basic error limit (operational limit at 25 °C)	
• Voltage, relative to input area	+/- 0,1 %
• Current, relative to input area	+/- 0,1 %
• Voltage, relative to output area	+/- 0,3 %
• Current, relative to output area	+/- 0,3 %
Interference voltage suppression for $f = n \times (f_1 \pm 1\%)$, $f_1 =$ interference frequency	
• common mode voltage, max.	12 V
Interrupts/diagnostics/status information	
Alarms	
• Alarms	Yes
• Diagnostic alarm	Yes
Diagnostic messages	
• Diagnostic functions	Yes
• Monitoring the supply voltage	Yes
• Wire break	Yes
• Short circuit	Yes
Diagnostics indication LED	
• for status of the inputs	Yes
• For status of the outputs	Yes
• for maintenance	Yes
Galvanic isolation	
Galvanic isolation analog outputs	
• between the channels and the power supply of the electronics	No
Degree and class of protection	
IP20	Yes
Standards, approvals, certificates	
CE mark	Yes
C-TICK	Yes
FM approval	Yes

6ES7 234-4HE32-0XB0 SM 1234 A I4x13 bit AQ 2x14 bit	
Climatic and mechanical conditions for storage and transport	
Climatic conditions for storage and transport	
• Free fall	
- Drop height, max. (in packaging)	0,3 m; five times, in dispatch package
• Temperature	
- Permissible temperature range	-40 °C to +70 °C
• Air pressure acc. to IEC 60068-2-13	
- Permissible air pressure	1080 to 660 hPa
Mechanical and climatic conditions during operation	
Climatic conditions in operation	
• Temperature	
- Permissible temperature range	0 °C to 55 °C horizontal installation 0 °C to 45 °C vertical installation
• Air pressure acc. to IEC 60068-2-13	
- Permissible air pressure	1080 to 795 hPa
• Pollutant concentrations	
- SO ₂ at RH < 60% without condensation	SO ₂ : < 0.5 ppm; H ₂ S: < 0.1 ppm; RH < 60% condensation-free
Connection method	
required front connector	Yes
Mechanics/material	
Type of housing (front)	
• Plastic	Yes
Dimensions	
Width	45 mm
Height	100 mm
Depth	75 mm
Weight	
Weight, approx.	220 g

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Ordering data	Order No.		Order No.
SM 1234 analog input/output signal module 4 analog inputs, ±10 V, ±5 V, ±2.5 V, or 0 ... 20 mA, 12 bits + sign; 2 analog outputs, ±10 V with 14 bits or 0 ... 20 mA with 13 bits	6ES7 234-4HE32-0XB0	S7-1200 automation system, System Manual for SIMATIC S7-1200 and STEP 7 Basic German English French Spanish Italian Chinese	6ES7 298-8FA30-8AH0 6ES7 298-8FA30-8BH0 6ES7 298-8FA30-8CH0 6ES7 298-8FA30-8DH0 6ES7 298-8FA30-8EH0 6ES7 298-8FA30-8KH0
Terminal block (spare part) for 8/16-channel analog signal modules with 7 screws, gold-plated; 4 pcs.	6ES7 292-1BG30-0XA0	S7-1200 automation system, Easy Book Brief instructions German English French Spanish Italian Chinese	6ES7 298-8FA30-8AQ0 6ES7 298-8FA30-8BQ0 6ES7 298-8FA30-8CQ0 6ES7 298-8FA30-8DQ0 6ES7 298-8FA30-8EQ0 6ES7 298-8FA30-8KQ0
Extension cable for two-tier configuration for connecting digital/analog signal modules; length 2 m	6ES7 290-6AA30-0XA0		
Front flap set (spare part) for 8/16-channel signal modules	6ES7 291-1BA30-0XA0		

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