

Overview

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

Technical specifications

Article number	6ES7232-4HB32-0XB0 ANALOG OUTPUT SM 1232, 2AO	6ES7232-4HD32-0XB0 ANALOG OUTPUT SM 1232, 4AO
Product type designation		
Supply voltage		
Rated value (DC)		
• 24 V DC	Yes	Yes
Input current		
Current consumption, typ.	45 mA	45 mA
from backplane bus 5 V DC, typ.	80 mA	80 mA
Power losses		
Power loss, typ.	1.5 W	1.5 W
Analog inputs		
Number of analog inputs	0	0
Thermocouple (TC)		
Temperature compensation		
- Parameterizable	No	No
Analog outputs		
Number of analog outputs	2; Current or voltage	4; Current or voltage
Output ranges, voltage		
• -10 V to +10 V	Yes	Yes
Output ranges, current		
• 0 to 20 mA	Yes	Yes
Load impedance (in rated range of output)		
• with voltage outputs, min.	1 000 Ω	1 000 Ω
• with current outputs, max.	600 Ω	600 Ω
Analog value creation		
Measurement principle	Differential	Differential
Integration and conversion time/ resolution per channel		
• Resolution (incl. overrange)	Voltage: 14 bits; Current : 13 bits	Voltage: 14 bits; Current : 13 bits
• Integration time, parameterizable	Yes	Yes
• Interference voltage suppression for interference frequency f1 in Hz	40 dB, DC to 60 V for interference frequency 50 / 60 Hz	40 dB, DC to 60 V for interference frequency 50 / 60 Hz

SIMATIC S7-1200 basic controller

I/O modules

Analog modules

SM 1232 analog output modules**Technical specifications (continued)**

Article number	6ES7232-4HB32-0XB0 ANALOG OUTPUT SM 1232, 2AO	6ES7232-4HD32-0XB0 ANALOG OUTPUT SM 1232, 4AO
Errors/accuracies		
Temperature error (relative to output range), (+/-)	25 °C ±0.3%, to 55 °C ±0.6% total measurement range	25 °C ±0.3%, to 55 °C ±0.6% total measurement range
Basic error limit (operational limit at 25 °C)		
• Voltage, relative to output area, (+/-)	0.3 %	0.3 %
• Current, relative to output area, (+/-)	0.3 %	0.3 %
Interference voltage suppression for $f = n \times (f_1 \pm 1 \%)$, $f_1 =$ interference frequency		
• common mode voltage, max.	12 V	12 V
Interrupts/diagnostics/status information		
Alarms		
• Alarms	Yes	Yes
• Diagnostic alarm	Yes	Yes
Diagnostic messages		
• Diagnostic functions	Yes	Yes
• Monitoring the supply voltage	Yes	Yes
• Wire break	Yes	Yes
• Short circuit	Yes	Yes
Diagnostics indication LED		
• For status of the outputs	Yes	Yes
• for maintenance	Yes	Yes
Degree and class of protection		
Degree of protection to EN 60529		
• IP20	Yes	Yes
Standards, approvals, certificates		
CE mark	Yes	Yes
CSA approval	Yes	Yes
FM approval	Yes	Yes
RCM (formerly C-TICK)	Yes	Yes
Highest safety class achievable in safety mode		
• SIL according to IEC 61508	none	none
Ambient conditions		
Free fall		
• Drop height, max. (in packaging)	0.3 m; five times, in dispatch package	0.3 m; five times, in dispatch package
Ambient temperature in operation		
• Permissible temperature range	-20 °C to +60 °C horizontal mounting, -20 °C to 50 °C vertical mounting, 95% humidity, non-condensing	-20 °C to +60 °C horizontal mounting, -20 °C to 50 °C vertical mounting, 95% humidity, non-condensing
• Min.	-20 °C	-20 °C
• max.	60 °C	60 °C
Storage/transport temperature		
• Min.	-40 °C	-40 °C
• max.	70 °C	70 °C
Air pressure acc. to IEC 60068-2-13		
• Operation, min.	795 hPa	795 hPa
• Operation, max.	1 080 hPa	1 080 hPa
• Storage/transport, min.	660 hPa	660 hPa
• Storage/transport, max.	1 080 hPa	1 080 hPa
Relative humidity		
• Permissible range (without condensation) at 25 °C	95 %	95 %
Pollutant concentrations		
- SO ₂ at RH < 60% without condensation	SO ₂ : < 0.5 ppm; H ₂ S: < 0.1 ppm; RH < 60% condensation-free	SO ₂ : < 0.5 ppm; H ₂ S: < 0.1 ppm; RH < 60% condensation-free

Technical specifications (continued)

Article number	6ES7232-4HB32-0XB0 ANALOG OUTPUT SM 1232, 2AO	6ES7232-4HD32-0XB0 ANALOG OUTPUT SM 1232, 4AO
Connection method		
required front connector	Yes	Yes
Mechanics/material		
Type of housing (front)		
• plastic	Yes	Yes
Dimensions		
Width	45 mm	45 mm
Height	100 mm	100 mm
Depth	75 mm	75 mm
Weights		
Weight, approx.	180 g	180 g

Ordering data

	Article No.		Article No.
SM 1232 analog output signal module		Extension cable for two-tier configuration	6ES7290-6AA30-0XA0
2 analog outputs, ±10 V with 14 bits or 0 ... 20 mA with 13 bits	6ES7232-4HB32-0XB0	for connecting digital/analog signal modules; length 2 m	
4 analog outputs, ±10 V with 14 bits or 0 ... 20 mA with 13 bits	6ES7232-4HD32-0XB0	Front flap set (spare part)	6ES7291-1BA30-0XA0
Terminal block (spare part)		for 8/16-channel signal modules	
for 8/16-channel analog signal modules with 7 screws, gold-plated; 4 units	6ES7292-1BG30-0XA0		