

# S-DIAS Analog Mixed Module AM 221



with 2 analog outputs  
2 analog inputs/potentiometer inputs  
1 reference output

The S-DIAS AM 221 analog mixed module has two  $\pm 10$  V analog outputs with a resolution of 12 bits and four  $\pm 10$  V analog inputs or 0-100 % potentiometer inputs with a 16-bit resolution. For the potentiometer inputs a 10 V reference is provided that can be loaded with a maximum of 8.3 mA.

## Analog Input Specifications $\pm 10$ V or Potentiometer Inputs 0-100 %

Number of channels	2	
Measurement range	-10 ... +10 V	0-100 %
Measurement value	-10,000 ... +10,000 or -30,000 ... +30,000 (at full range)	0 ... 10,000 or 0 ... 30,000 (at full range)
Input type	differential input	potential input
Resolution	16-bit (ca. 0.3 mV/LSB)	
Conversion time for all channels	depending on the selected timing Speed mode: 200 $\mu$ s Time offset mode: corresponds to the S-DIAS cyclic time	
Common mode range	$\pm 12$ V	
Input resistance	> 10 M $\Omega$	
Cable break monitor	yes	
Input filter hardware	typically 1 kHz, low pass 3rd order system	
Input filter software	configurable, low pass 1st order system	
Analog measurement precision	$\pm 0.3$ % of maximum measurement value	$\pm 0.35$ % of maximum measurement value

## Reference Output Specifications

Number of channels	1
Reference voltage	+10 V
Allowable output current	maximum 5 mA (< HW-Version 2.5) maximum 8.3 mA ( $\geq$ HW-Version 2.5)
Allowable load per potentiometer input	$\leq 2.50$ mA (< HW-Version 2.5) $\leq 4.17$ mA ( $\geq$ HW-Version 2.5) $\geq 4.0$ k $\Omega$ (< HW-Version 2.5) $\geq 2.4$ k $\Omega$ ( $\geq$ HW-Version 2.5)
Short-circuit protection	yes (1 min.)
Accuracy	$\pm 0.5$ %

## Analog Output Specifications $\pm 10$ V

Number of channels	2
Output range	-10 ... +10 V
Output value	-10,000 ... +10,000
Resolution	12-bit (ca. 5 mV/LSB)
Refresh time for all channels	$\geq 500$ $\mu$ s (corresponds to the S-DIAS cyclic time)
Output voltage capacity	> 5 k $\Omega$ m
Allowable capacitive load	maximum 100 nF
Short-circuit protection	yes
Settling time	50 $\mu$ s (63 % of the end value) 100 $\mu$ s (86 % of the end value) 250 $\mu$ s (99 % of the end value)
Output precision	$\pm 0.5$ % of maximum output value

## Electrical Requirements

Voltage supply from S-DIAS bus	+5 V	
Current consumption on the S-DIAS bus (+5 V supply)	typically 50 mA	maximum 55 mA
Voltage supply from S-DIAS bus	+24 V	
Current consumption on the S-DIAS bus (+24 V power supply)	typically 32 mA (without load on reference output and analog outputs)	typically 40 mA (without load on reference output and analog outputs)
	typically 40 mA (reference output loaded with 4x 4 k $\Omega$ and maximum load on the analog outputs)	maximum 55 mA (reference output loaded with 4x 4 k $\Omega$ and maximum load on the analog outputs)
	typically 45 mA (reference output loaded with 4x 2k4 k $\Omega$ and maximum load on the analog outputs)	maximum 60 mA (reference output loaded with 4x 2k4 k $\Omega$ and maximum load on the analog outputs)
Short-circuit condition	typically an additional 30 mA per channel on a +24 V supply	

### Article Number and Miscellaneous

Article number	20-017-221
Dimensions	12.5 x 104.2 x 72 mm (W x H x D)
Standard	UL 508 (E247993)
Approvals	UL, cUL, CE

### Environmental Conditions

Storage temperature	-20 ... +85 °C	
Environmental temperature	0 ... +60 °C	
Humidity	0-95 %, non-condensing	
Operating conditions	pollution degree 2 altitude up to 2000 m	
EMC resistance	in accordance with EN 61000-6-2 (industrial area)	
EMC noise generation	in accordance with EN 61000-6-4 (industrial area)	
Vibration resistance	EN 60068-2-6	3.5 mm from 5-8.4 Hz 1 g from 8.4-150 Hz
Shock resistance	EN 60068-2-27	15 g
Protection type	EN 60529	IP20

## Notes

