

DOG1 MEMS-Series Inclinometer

Range $\pm 180^\circ$ single axis
Easy to use voltage output
Supply voltage 8-30V
High resolution

The single axis inclinometer

is mainly developed for vehicle and tool position monitoring. A fast response time and good accuracy makes this device the ideal choice for mobile leveling applications. It features digital signal processing including temperature compensation. The integrated filter improves performance and allows a use of the sensor in many noisy environments (e.g. vibrations).

FEATURES

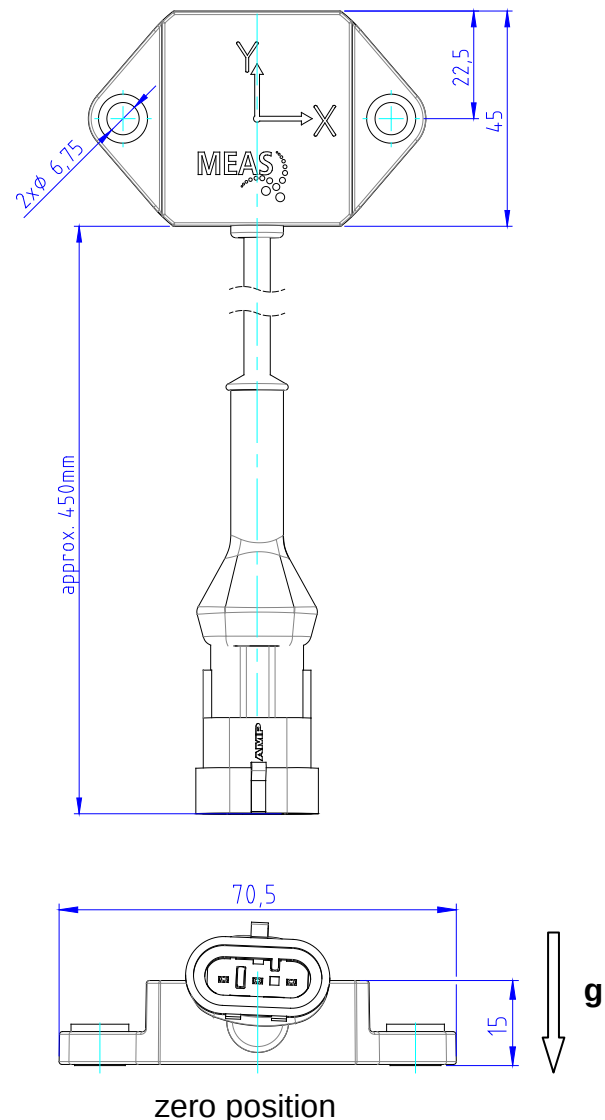
- 8-30V supply voltage (5V on request)
- Up to ± 90 degree tolerance on 2nd axis
- Digital signal processing includes
 - filter (e.g. vibration damping)
 - temperature compensation
- 12 bit resolution
- High refresh rate
- -40°C to $+85^\circ\text{C}$ temperature range
- Accuracy typically better than
 - 0.2° at $+25^\circ\text{C}$
 - 0.6° (-40°C to $+85^\circ\text{C}$)

APPLICATIONS

- Platform leveling
- Truck and off-road vehicle cabin or tool leveling
- Crane boom leveling
- Tilt alarm, e.g. digger
- Antenna leveling
- Inclination dependent engine control



dimensions



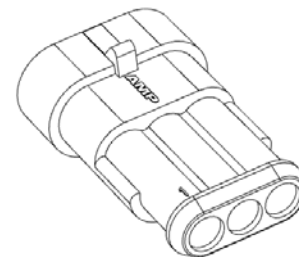
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PARAMETERS

Parameter	Value	Comment
Range	+/- 180°	Roll (pitch possible)
Accuracy, typ.	0.6°	T=-40°C ~ +85°C
Accuracy, typ.	0.2°	T=+25°C
Resolution	12 bit	
Refresh rate, intern	50~100 Hz	
Startup time	<1s	Valid output angles
Supply/excitation voltage	8 ~ 30V	5V version available as OEM solution on request
Supply current	~10mA typ., 18mA max.	
Output	0.5 ~ 4.5V	-180° ~ +180°, x-direction only
Connector	AMP Superseal 1.5-Series, 3-pos cap housing Tyco Art.-Nr. 282105-1	Requires 3-pos plug housing AMP Superseal 1.5-Series at connecting harness, Tyco Art.-Nr. 282087-1
Cable	3 wire 0.3mm², outer diameter 3.9mm	Length incl. connector 450mm, full temperature range, flexible
Operation temperature range	-40°C ~ +85°C	
Storage temperature range	-40°C ~ +85°C	
Weight	<50g	
Dimensions	70.5 x 45 x 15 mm	W x D x H

USER INTERFACE

Pin	Function	Description
1	V _{CC}	+8 ~ 30V supply input
2	GND	GND
3	Output	0.5 ~ 4.5V, X-axis output



COMMENTS

The inclinometer includes a powerful digital signal processing that offers various filter algorithms and allows customer specific adaptations. It is possible to adjust the sensor to different environments to yield an optimized performance. Customization can also be made in terms of angular range and connectivity, i.e cable and connector.

The main axis gives unique output over +/-180 (0..360) degrees while the other axis has to be kept in a +/-90° range.

The PA6.6 housing is very compact in size and has compression limiter bushings for safe installation of the sensor. In contrast to uncoated (casted) aluminum, PA6.6 is resistant to atmospheric attack. It is compatible with oil, grease and fuel also. Therefore it is frequently used for engine and vehicle applications.

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ordering info

PART NUMBERING	UNIT	SHORT DESCRIPTION
G-NSDOG1-006	180 DOG1	Single axis, range +/- 180°, Vcc +8 ...30VDC, output voltage +0.5...+4.5V