

MEMS Series CAN Inclinometer



- Range $\pm 90^\circ$
- Good accuracy
- High resolution
- Supply voltage 8-30V
- CAN J1939 interface

DESCRIPTION

The dual axis inclinometer is mainly developed with focus on platform leveling, dynamic engine management, tip-over protection and tilt alarm.

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. with vibrations).

FEATURES

Smart housing, small footprint
 Digital signal processing includes

- Filter (e.g. vibration damping)
- Temperature compensation
- Linearization

Good accuracy

APPLICATIONS

Truck and off-road vehicle leveling (e.g. cabin or tool)
 Platform leveling
 Tilt alarm (e.g. digger tip over warning)
 Antenna leveling
 Inclination dependent engine control
 Solar panel elevation
 Crane boom leveling

FUNCTION

BASIC DESCRIPTION

The inclinometer includes a powerful digital signal processing that offers various filter algorithms and allows customer specific adaption. 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 PA6.6 housing is very compact in size and has compression limiter bushings for safe installation of the sensor. It is compatible with oil, grease and many other media. Therefore it is frequently used for engine and vehicle applications.

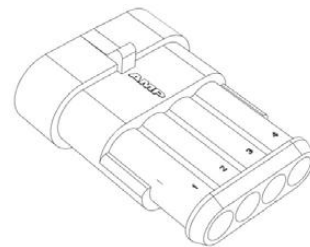
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PERFORMANCE SPECS

Parameter	Value	Comment
Range	±90deg	pitch and roll angle, neutral position: sensor parallel to ground
Accuracy, typ.	0.15deg	T=25°C ambient temperature
Accuracy, typ.	0.5deg	T= -40°C ~ 85°C ambient temperature
Resolution	0.01deg	limited by CAN protocol
Refresh rate	100Hz	
Startup time	<1s	after power cycle
Supply/ excitation voltage	8 ~ 30VDC	
Supply current	<30mA	typ. 20mA, peak 30mA during transmit
Output	pitch and roll angle	linearized and temperature compensated angles in degree, reference is plane perpendicular to vector of gravity = earth surface
Interface	SAE J1939 CAN2.0B	250kbps
Temperature range	-40 ~ 85°C	operation and storage
Weight	Typ. 60g	
Dimensions	70.5 x 45 x 15mm	sensor housing without cable assembly
Connector	AMP Superseal 1.5 series, 4-pos cap housing, TE Connectivity PN 282106-1	requires 4-pos plug housing AMP Superseal 1.5 series at connecting harness, TE Connectivity PN 282088-1
Cable	4 wire 0.25mm ² , outer dia. Ø3.9mm	length incl. connector 400mm, flexible

INTERFACE/ CONNECTOR

Pin	Function	Description	Direction
1	supply voltage	8~30VDC	in
2	ground/ earth	0V, ref. voltage	in
3	CAN H	CAN high line	in/out
4	CAN L	CAN low line	in/out



The CAN J1939 detailed description is included in the specification, which is available on request.

ORDERING INFORMATION

PART NUMBER	SHORT DESCRIPTION
G-NSDOG2-200	Dual axis tilt sensor, range +/-90deg, Vcc 8~30VDC, J1939 CAN Interface

MEMS Series CAN Inclinometer

DIMENSIONS

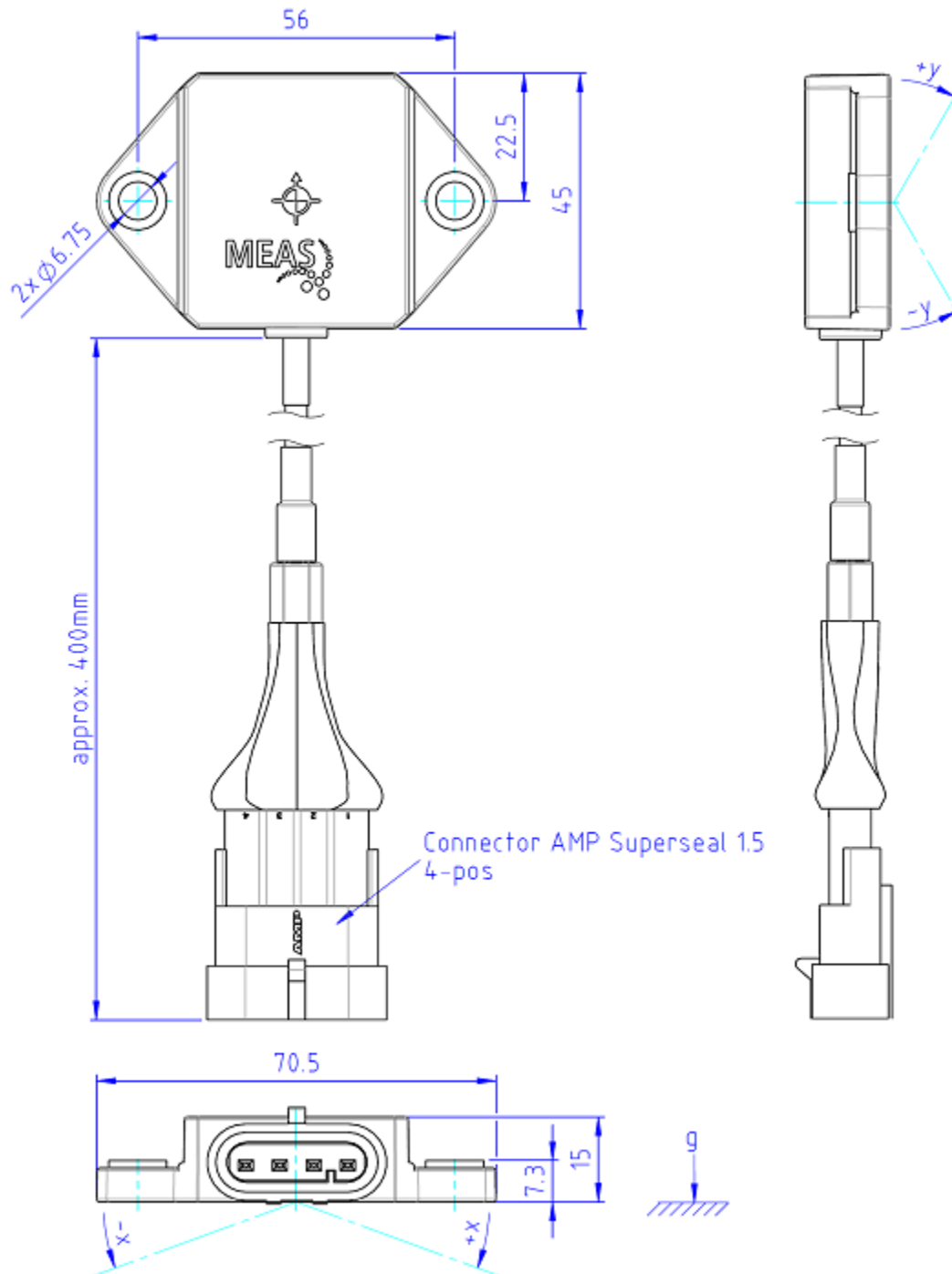


Figure 1: Sensor dimensions, “g” arrow indicates vector of gravity for neutral position (pitch=roll=0deg)

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TECHNICAL CONTACT INFORMATION

NORTH AMERICA	EUROPE	ASIA
Measurement Specialties, Inc. 1000 Lucas Way Hampton, VA 23666 United States Phone: +1-800-745-8008 Fax: +1-757-766-4297 Email: sales@meas-spec.com Web: www.meas-spec.com	MEAS Deutschland GmbH Hauert 13 D-44227 Dortmund Germany Phone: +49-(0)231-9740-0 Fax: +49-(0)231-9740-20 Email: info.de@meas-spec.com Web: www.meas-spec.com	Measurement Specialties China Ltd. No. 26, Langshan Road High-tech Park (North) Nanshan District, Shenzhen 518057 China Phone: +86-755-33305088 Fax: +86-755-33305099 Email: info.cn@meas-spec.com Web: www.meas-spec.com

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Наши контакты:

Телефон: +7 812 627 14 35

Электронная почта: sales@st-electron.ru

Адрес: 198099, Санкт-Петербург,
Промышленная ул, дом № 19, литера Н,
помещение 100-Н Офис 331