Digital Advanced Sensors

Sensing Control Leading I Sensor Specialized Company

CANbus Inclinometer

JSENS-IN

High performance MEMS based inclinometer (tilt sensor)

Perfectly applicable with CANopen and SAE-J1939

Micro-Processor mounted for stable sensing and data processing

Black-rubber coated high strength plastic housing

Customized specifications for applying various industry areas

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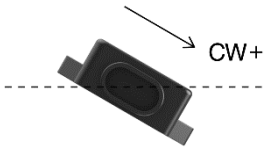
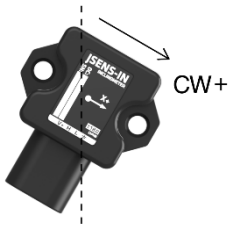
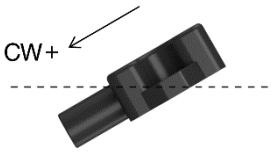
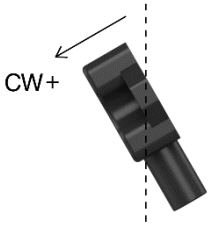
To respond CAN that becoming mainstream communication standard for mobile vehicles, new-generation sensor series which perfectly applicable for CANopen and SAE-J1939 are now released. Introduce the series of high reliable CANbus sensors exceed performances of current analog and serial communication.

● Specifications

Item	Specification		Remarks
Measuring Range	Uniaxial	±180˚	Settable
	Biaxial	±90˚	settable
Accuracy	0.1˚		
Non-Linearity	0.25% FS		
Response	<0.3sec		10deg/sec
Output Interval	10msec		
Output	CANopen SAE-J1939		
Power Source	10 ~ 30Vdc		
Current Consumption	〈60mA		@12Vdc
Operating Temp.	-20℃ ~ +85℃		
Waterproof	IP66		
Dimensions	W40 x H40 x D16mm		Without mount
Weight	40g		
Cable	Delphi 1216-2833		500mm

- Measuring Range
  e.g. -30 ˚ ~ +90 ˚ / -30 ˚ ~ +60 ˚
- Biaxial : Each axis within ±5˚ ~ ±90˚
- The min/max angle must satisfy each axis' designated range.
  Please inquire separately for less than -3˚ ~ +3˚ (deg)
- ±90˚ (deg) specification, the error range increases at angles exceeding ±85˚ (deg).

● Sensing Directions

X-axis, Floor Mount	X-axis, Wall Mount
	
Y-axis, Floor Mount	**Y-axis, Wall Mount**
	

● Wiring Connections

Axis	Color	Analog	CANbus
Uniaxial	RED	V+	
	BLACK	GND (COM)	
	GREEN	X+	CAN H
Biaxial	WHITE	Y+	CAN L

- JSENS series is designed for Delphi 1216-2833 plug. Harness can be ordered optionally for wiring.
- Uniaxial doesn't use the white wire.

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● Analog Data Descriptions

Deg. From Analog – Vdc output

$$\text{Angle} = \left(\frac{\text{Measuring Range}}{\text{Output V Range}}\right) \times (\text{Output V} - \text{Zero offset})$$

- Measuring Range = max range – min range
- Output V Range
  = maximum output V – minimum output V
  = 4.5V – 0.5V = 4V
- Zero offset = 2.5V

e.g. Measuring range ±90 deg, Output 3.5V

$$\text{Angle} = \left(\frac{+90 - (-90)}{4}\right) \times (3.5 - 2.5) = +45°$$

● CAN Protocol

- Bitrate : 500kpbs
- Transmit Interval : 10ms
- Transmit Start : Automatically
- Default COB ID (HEX) : 0x0A
- Output data includes only angular data.
- Refer each protocol manual for CANopen and SAE-J1939.

※ CANopen Inclinometer Protocol

※ SAE-J1939 Sensor Protocol

● Ordering Code

①	Axis	S D	Uniaxial Biaxial
②	Output	CO CJ	CANopen Protocol SAE-J1939 Protocol
③	Range	Set measuring mount	
④	Attachment Direction	F W	Floor mount Wall mount
⑤	Rotational Direction	C NC	Terminating Resistance (default) Non-Terminating Resistance

- Code format : JSENS-IN-[①]-[②]-[③]-[④]-[⑤]
  e.g. JSENS-IN-S-CO-180-F-C
- Optional
  Plug harness: Delphi 1216-2833
  COB ID : Settable within HEX 201~27F
- Termination resistance applies only to CAN communication specifications

● Notes

- Ground connection is recommended in noise occurred environment.
- MEMS based inclinometer (tilt sensor) measure tilt (degree) by gravity. Check sensing directions before use.
- Check wiring connections before use.
- 12 months warranty is provided after released. Warranty provided only in case of using for designed purpose correctly.
- Specifications, design and components can bd changed without prior notice to improve its performances.

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