

CANbus InclinometerDIGITAL ADVANCED SENSORS **DAS****JSENS-IN** CE FC**CANopen** SAE J1939

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.

- 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

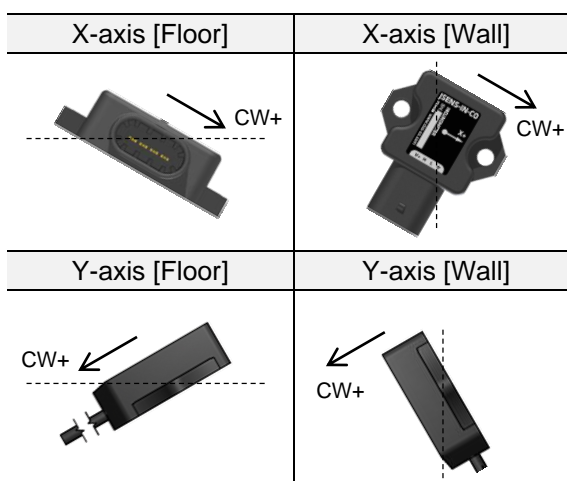
**General Specifications**

Item	Specification	
Measuring Range ¹⁾	Uniaxial	+/-1 ... +/-180 deg
	Biaxial	+/-5 ... +/-80 deg
Accuracy	0.1 deg	
Non-Linearity	1% FS	
Response	<0.1 sec	
Output ²⁾	0.5 ... 4.5Vdc CANopen SAE-J1939	
Power Source	10 ... 30VDC	
Current Consumption	<30mA @24Vdc	
Operating Temp.	-20 ... +85 celsius	
Waterproof	IP66	
Mechanical Life	Semi-Permanent	
Dimensions ³⁾	W40 x D40 x H16mm	
Weight	40g	
Cables	Delphi 1216-2833, 50cm	

¹⁾ Measuring Range

*Uniaxial : Set freely within +/-1 ... +/-180 deg
e.g. -30 ... +90 deg / 0 ... +120 deg

*Biaxial : Each axis within +/-5 ... +/-80 deg

²⁾ Measuring Range fixed as maximum with CAN**³⁾ Without Mounting****Sensing Directions****Wiring Connections**

JSENS series is designed for Delphi Automotive 1216-2833 plug. Harness can be ordered optionally for wiring.

Image	Color	Analog	CANbus
	1 RED	V+	
	2 GREEN	X+	CAN H
	3 WHITE	Y+	CAN L
	4 BLACK	GND (COM)	

Uniaxial sensor doesn't use the white wire.

CAN Protocol

- 1) Birtate : 500 kpbs
- 2) Transmit Interval : 10_{ms}
- 3) Transmit Start : Automatically
- 4) Default COB ID (HEX) : 0x0A
- 5) Output data includes only angular data.
- 6) Refer each protocol manual for CANopen and SAE-J1939.

※ [CANopen Inclinometer Protocol](#)

※ [SAE-J1939 Sensor Protocol](#)

Analog Data Descriptions

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

Measuring Range : max range – min range

Output V Range : 4.5V – 0.5V = 4V

Zero Offset : 2.5V

e.g. Measuring range +/-90 deg, Output 3.5V,

$$\left(\frac{+90 - (-90)}{4} \right) \times (3.5 - 2.5) = +45^\circ$$

Ordering Code

Format : JSENS-IN-(1)-(2)-(3)-(4)-(5)

(1)	S	Uniaxial
	D	Biaxial
	MV	0.5 ... 4.5Vdc output
(2)	CO	CANopen protocol
	CJ	SAE-J1939 protocol
(3)	Measuring Range	(Settable)
(4)	F	sensing direction of [Floor]
	W	sensing direction of [Wall]
(5)	C	Terminating Resistance (Default)
	NC	Non-Terminating Resistance

e.g. JSENS-IN-S-CO-180-F-C

Options

- 1) Plug Harness : Delphi 1216-2833
- 2) COB-ID : Settable within HEX 201...27F
- 3) Terminating Resistance is only for CAN

NOTES

- 1) Ground connection is recommended in noise occurred environment.
- 2) MEMS based inclinometer (tilt sensor) measures tilt (degree) by gravity. Check sensing directions before use.
- 3) Check wiring connections before use.
- 4) 12 months warranty is provided after released. Warranty provided only in case of using for designed purpose correctly.
- 5) Specifications, design and components can be changed without prior notice to improve its performances.

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