

# Gear Tooth Speed Sensors



## GS101205 Sensors

Flange mount gear tooth speed sensor rated to 140 °C

### Description

The GS101205 series gear tooth speed sensors are Hall Effect devices designed for use in applications where ferrous edge detection/near zero speed sensing is needed. The single Hall design is immune to alignment issues allowing unlimited mounting positions. They provide a sinking current output.

### Features

- From near zero speed up to 15 kHz sensing capability
- Plastic flange mount-housing
- Resistant to fuels, solvents, and lubricants associated with engines, transmissions, brakes and chassis systems
- RoHS compliant
- IP67
- Typical air gap of 1.5 mm\*

### Typical Applications

- Speedometers
- Anti-lock braking systems
- Exercise equipment
- CNC machine tools

### Environmental Specifications

Vibration	Sinusoidal, 15 g max from 40 Hz to 2 kHz
Mechanical Shock Resistance	50 g
Maximum Speed Detection	15 kHz
Operating Temperature**	-40 °C to 140 °C (-40 °F to 284 °F) **up to 150 °C (302 °F) with reduced performance
Storage Temperature	-40 °C to 150 °C (-40 °F to 302 °F)
Ingress Protection	IP67

### Electrical Specifications

Operating Supply Voltage	5 to 24 VDC
Maximum Input Voltage	30 VDC
Maximum Reverse Voltage	26.5 VDC
Supply Current	3 mA typ., 6 mA max
Output Sink Current	25 mA max
Recommended Pull-Up Resistor	See chart

### Mechanical Specifications

Housing Material	Glass Reinforced Thermoplastic
Maximum Installation Torque Limit	5.65 Nm (50 in lb) on threads
Operating Air Gap / Sensing Distance*	1.5 mm (0.06")
* With recommended target type; see drawing	
Sensor Orientation	Not sensitive
Possible O-ring size	AS568A-016 (varies with application)

### Products

Part Number	Leads	Connector**
GS101205		Delphi Metri-Pack 150

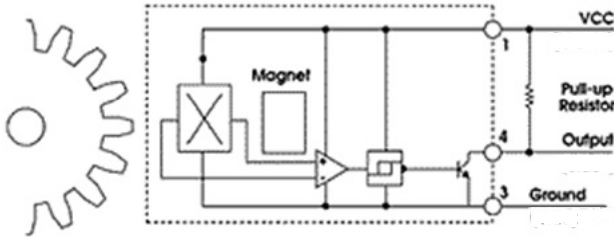
\*\*Mates to Delphi connector 12162280

Note: An external pull-up resistor is required, the value of which is dependent on the supply voltage. The resistor should be connected between the output and Vcc. Refer to the wiring diagram for lead colors or pin numbering as applicable.

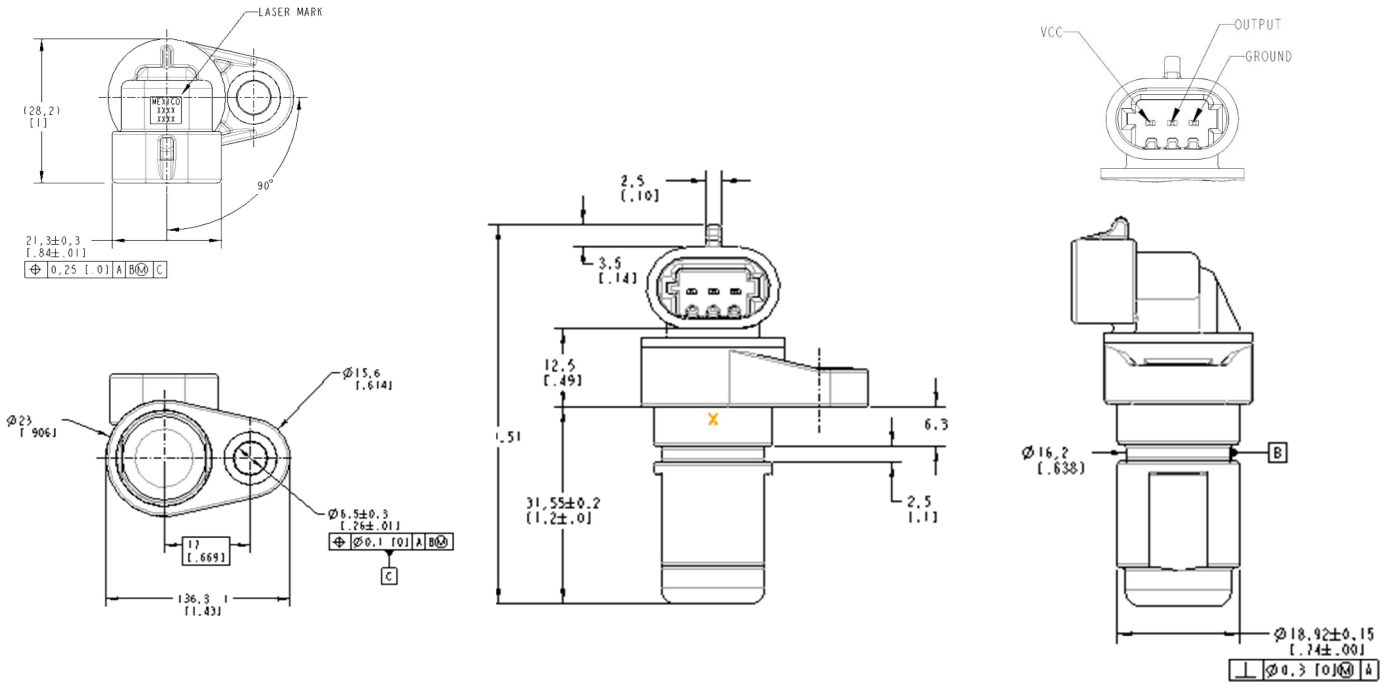
### Recommended External Pull-Up Resistor

Volts DC	5	9	12	15	24
Ohms	1k	1.8k	2.4k	3k	3k

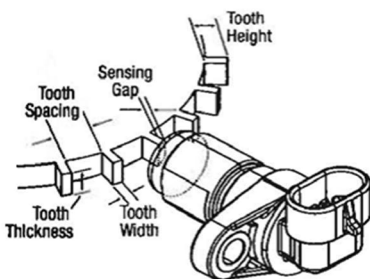
### Open Collector Sinking Block Diagram



### Dimensions mm (inches)



### Installation



For best results, we recommend targets made from low carbon cold rolled steel. Other factors that influence sensor performance include gear tooth height and width, space between the teeth, shape of the teeth and thickness of the target. As a general guideline, consider a target with minimum parameters as shown below. Note that smaller dimensions may work, but testing for the application is required.

Tooth Height	Tooth Width	Distance between Teeth	Target Thickness
5.0 mm (.200")	2.5 mm (.100")	10 mm (.400")	6.35 mm (.250")

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