

## GEARTOOTH SPEED SENSOR

# GS1012 Series



### Description

The GS1012 series gear tooth sensors are Hall Effect devices designed for use in applications where ferrous edge detection or near zero speed sensing (without power up recognition) is needed.

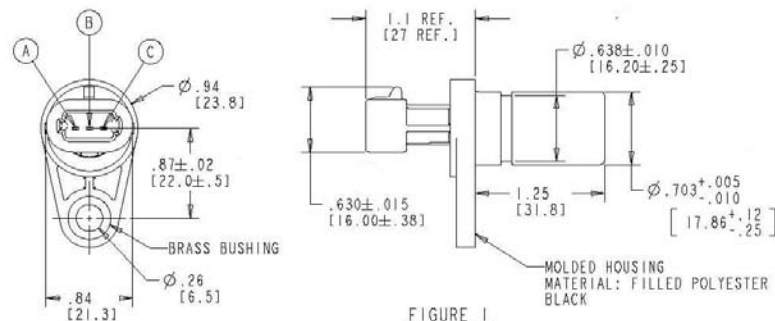
### Features and Benefits

- Immune to rotational alignment
- ESD resistant to 4kV (contact discharge)
- Mating connector: Delphi 12162280 and 12162279
- Discrete wire version: 20awg, tin plated polyolefin insulation.

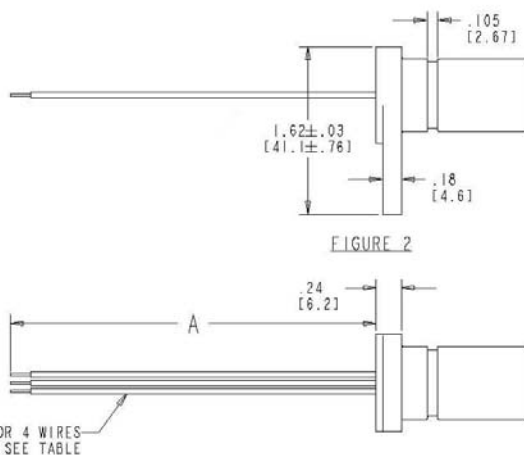
### Applications

- Exercise equipment
- Food processing equipment
- Speedometer

### Dimensions mm



| CONNECTOR TYPE | DESCRIPTION                                                                                                   |
|----------------|---------------------------------------------------------------------------------------------------------------|
| I              | DELPHI METRI-PACK 150 MOLDED CONNECTOR<br>MATERIAL: FILLED POLYESTER, BLACK<br>MATES WITH 12162280 & 12162279 |



| WIRE TYPE | DESCRIPTION                                                |
|-----------|------------------------------------------------------------|
| I         | 20 GAUGE WIRE; XL POLYOLEFIN 150 DEG C, MEETS SAEJ-1128TXL |

| 7F ELECTRONICS | CONNECTION |                |                 | OUTPUT     |        |           | NOTES        |
|----------------|------------|----------------|-----------------|------------|--------|-----------|--------------|
| PART NUMBER    | WIRE TYPE  | CONNECTOR TYPE | WIRE LENGTH "B" | SUPPLY Vcc | GROUND | OUTPUT Vo |              |
| GS101201       | N/A        | I              | N/A             | A          | C      | B         | SEE FIGURE 1 |
| GS101202       | I          | N/A            | 39.4"/1000mm    | BROWN      | BLUE   | BLACK     | SEE FIGURE 2 |

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**Mechanical Specifications**

|                                    |                                        |
|------------------------------------|----------------------------------------|
| <b>Airgap</b>                      | Application dependent                  |
| <b>Maximum Installation Torque</b> | 50 in-lbs (for a ¼ - 20 Hex Cap screw) |

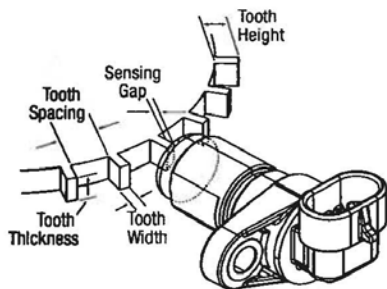
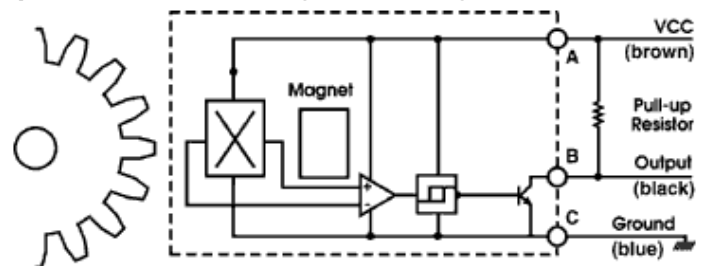
**Electrical Specifications**

|                                         |                                                                         |
|-----------------------------------------|-------------------------------------------------------------------------|
| <b>Operating Voltage Range</b>          | 5 - 24 VDC                                                              |
| <b>Supply Voltage</b>                   | 5 - 24 VDC                                                              |
| <b>Supply Current</b>                   | 6 mA max                                                                |
| <b>Output Saturation Voltage</b>        | 400 mV max                                                              |
| <b>Output Current</b>                   | 20 mA max                                                               |
| <b>Operating Temperature</b>            | -40° to +125°C                                                          |
| <b>Storage Temperature Range</b>        | -40° to +125°C                                                          |
| <b>Output Rise time</b>                 | 5µS                                                                     |
| <b>Output Fall time</b>                 | 5µS                                                                     |
| <b>Electrostatic Discharge Immunity</b> | +3kV indirect contact, +4kV direct contact                              |
| <b>Electric Field Radiated Immunity</b> | At 10V/m (using 80% amplitude modulation @ 1kHz) from 26Mz to 1000 MHz  |
| <b>Electrical Fast Transient Test</b>   | +2kV on DC power supply                                                 |
| <b>Immunity to Magnetic Fields</b>      | SAE J1113-22 (600 microT AC field; 5Hz to 2kHz; .2mT & 1mT DC field)    |
| <b>Conducted Immunity Test</b>          | Injected with 10Vrms from 150kHz to 80 MHz                              |
| <b>Dielectric Withstand Voltage</b>     | MIL-STD-202F, Method 301 1000V applied for a minimum of one minute.     |
| <b>Insulation Resistance</b>            | MIL-STD-202F, Method 302, Test Condition B 500V applied for one minute. |

|                             |                                                           |
|-----------------------------|-----------------------------------------------------------|
| <b>Water Immersion</b>      | MIL-STD 202F, Method 104, Test Condition A                |
| <b>Salt Spray</b>           | MIL-STD-202F, Method 101, Test Condition B                |
| <b>Sinusoidal Vibration</b> | MIL-STD-202F Method 204, Test Condition C from 55-2000 Hz |
| <b>Random Vibration</b>     | MIL-STD-20F Method 214, Test Condition IC                 |
| <b>Mechanical Shock</b>     | 18 shocks at 50g's 11ms per Mil Std 202F                  |

**Recommended external pull-up resistor:**

|                 |    |      |      |    |    |
|-----------------|----|------|------|----|----|
| <b>Volts DC</b> | 5  | 9    | 12   | 15 | 24 |
| <b>Ohms</b>     | 1k | 1.8k | 2.4k | 3k | 3k |

**Open Collector Sinking Block Diagram**

For best results, we recommend targets made from low carbon cold rolled steel. Other factors that influence sensor performance include geartooth height and width, space between teeth, shape of the teeth and thickness of the target. As a general guideline, consider a target with the following minimum parameters:

| Tooth Height | Tooth Width | Distance Between Teeth | Target Thickness |
|--------------|-------------|------------------------|------------------|
| .200"        | .100"       | .400"                  | .250"            |

**Contact**

Call, fax or visit our website  
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Specifications subject to change without notice.

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