

GEARTOOTH SPEED SENSOR

GS1005 – GS1007



Description

The GS1005-1007 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. Current sinking output requires the use of a pull up resistor.

Features and Benefits

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

Applications

- Exercise equipment
- Food processing equipment
- Speedometer

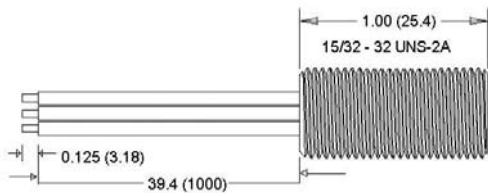
GS1005-GS1007 Specifications

Part Number	Operating Voltage Range (VDC)	Supply Current (mA max)	Output	Output Saturation Voltage (mV max)	Output Current (mA max)	Operating Temp Range (°C)	Storage Temp Range (°C)	Thread	Barrel Length	Leads	Connector
GS100501	5-24	6	Sink	400	30	-40 to 105	-40 to 105	M12-1 Class 6G	65mm	---	12mm circular
GS100502	5-24	6	Sink	400	30	-40 to 125	-40 to 125	M12-1 Class 6G	65mm	20awg x 1m BBB	---
GS100701	5-24	6	Sink	400	30	-40 to 125	-40 to 125	15/32 - 32 UNS 2A	1.00"	20awg x 1m BBB	---

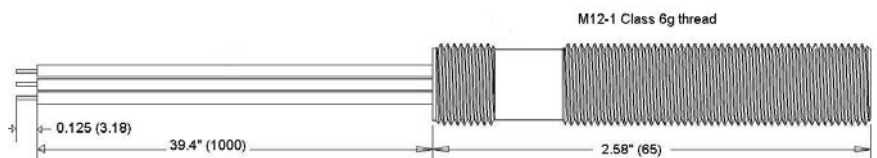
Note: These sensors require the use of an external pull-up resistor, the value is dependent upon the supply voltage. Pull-up resistor should be connected between output (Black) and Vcc (Brown). See chart on next page for recommendations.

Dimensions mm

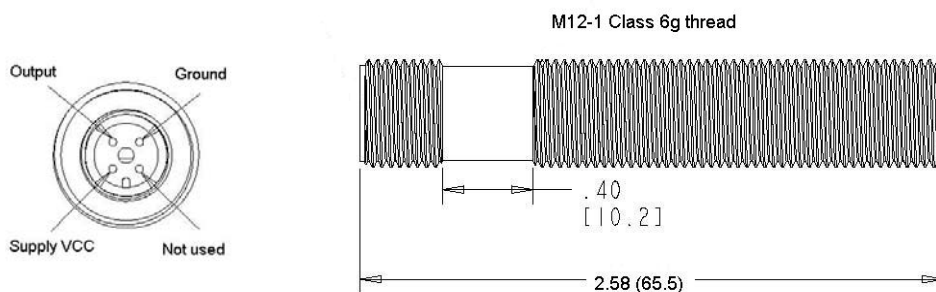
GS100701



GS100502



GS100501



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Mechanical Specifications

Airgap	Application dependent
Maximum Installation Torque	50 in-lbs (for a ¼ - 20 Hex Cap screw)

Electrical Specifications

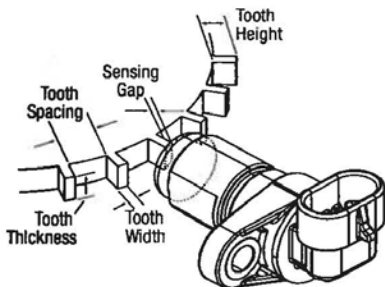
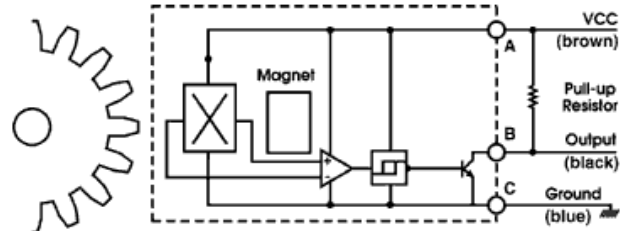
Operating Voltage Range	5 - 24 VDC
Supply Voltage	24 - 30 VDC
Supply Current	6 mA max
Output Saturation Voltage	400 mV max
Output Current	30 mA max
Operating Temperature	-40° to +125°C (GS100502 & GS100701) -40° to +105°C (GS100501)
Storage Temperature Range	-40° to +125°C (GS100502 & GS100701) -40° to +105°C (GS100501)
Output Rise time	5µS
Output Fall time	5µS
Electrostatic Discharge Immunity	+ 3kV indirect contact, + 4kV direct contact
Electric Field Radiated Immunity	At 10V/m (using 30% amplitude modulation @ 1kHz) from 26Mz to 1000 MHz
Electrical Fast Transient Test	+ 2kV on DC power supply
Immunity to Magnetic Fields	SAE J1113-22 (600 microT AC field; 5Hz to 2kHz; .2mT & 1mT DC field)
Conducted Immunity Test	Injected with 10Vrms from 150kHz to 80 MHz
Dielectric Withstand Voltage	MIL-STD-202F, Method 301 1000V applied for a minimum of one minute.
Insulation Resistance	MIL-STD-202F, Method 302, Test Condition B 500V applied for one minute.

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

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



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

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Specifications subject to change without notice.

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