

GEARTOOTH SPEED AND DIRECTION SENSOR

SD101201

Circuit protected, Hall-effect speed and direction sensor



Description

The SD101201 is a speed and direction sensor designed to detect the speed and direction of moving gear teeth. The speed and direction outputs are open collector transistors. One hall effect sensor is used to detect the speed of the gear tooth and the other is used to detect the direction of movement.

Features and Benefits

- Orientation sensitive
- Mates with Delphi Metri Pack 150.2 Series #12162833 and Terminal Number 12124075
- Operating temperature range -40°C to +125°C
- Near zero speed sensing capability

Applications

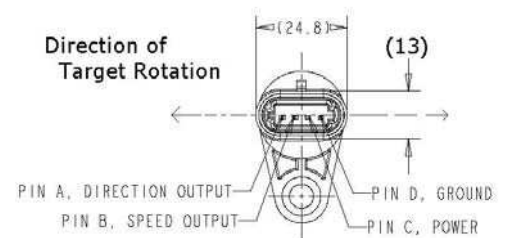
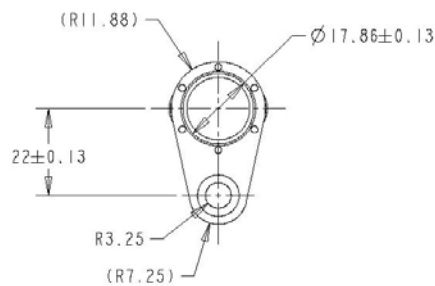
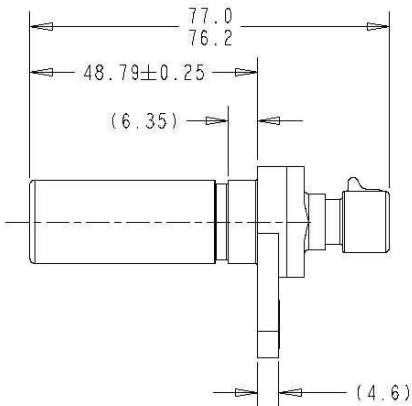
- Wheel speed and direction
- Hoist speed and direction

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)	Housing Material
SD101201	4.75 - 24	20	Sink	1000	20	-40 to 125	-40 to 125	Plastic

Note: A pull up resistor is required between power and each output. Resistor value is dependant upon input voltages.

Dimensions (mm)



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Mechanical Specifications

Airgap	Airgap is application dependent
Maximum Installation Torque	The installation torque limit when using ¼ -20 Hex Cap screw is between 10 to 15 ft-lbs

Electrical Specifications

Operating Voltage Range	4.75 – 24 VDC
Reverse Voltage	-30 VDC
Supply Current	20 mA max
Output Saturation Voltage	1V max
Output Current	20 mA max
Operating Temperature	-40° to +125°C
Storage Temperature Range	-40° to +125°C
ESD	Tested per IAW SAE J1455 Section 4.11.2.2.5.2. with 330pFkΩ simulator
Immersion	Tested per IAW SAE J1455 section 4.4.3 (Immersion for 24 hrs)
	Tested per IAW CEI IEC 529 IP67 (Immersion at 1 meter depth for 30 minutes)

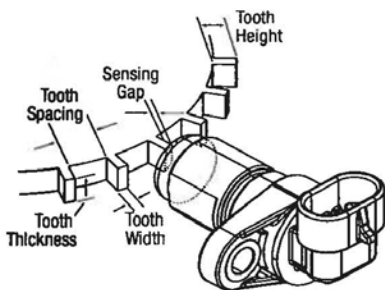
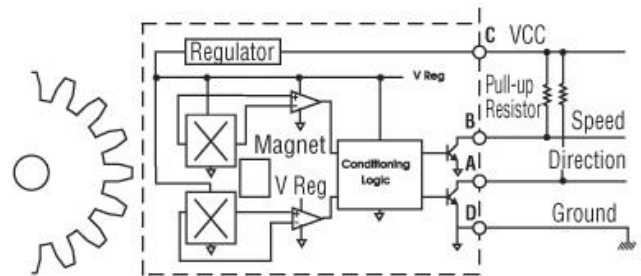
Salt Spray	Tested per IAW SAE J1455, Section 4.3.3
Sinusoidal Vibration	IAW SAE J1455 section 4.9
Mechanical Shock	IAW SAE J1455 section 4.10.3.1

Operation: When sensing the leading edge of a tooth the Speed Output goes high (ON), and goes low (OFF) on the lagging edge of the tooth when run against the standard ZF product gear tooth sensor target. The direction of movement is latched on the leading edge of the speed sensor. The direction Output goes high (ON) for clockwise rotation and low (OFF) for counterclockwise rotation. The state of the Direction Output always leads the rising edge of the speed output.

Recommended external pull-up resistor:

Volts DC	5	9	12	15	24
Ohms	1k	1.8k	2.4k	3k	4.8k

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 gear tooth 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

For more information.

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Specifications subject to change without notice.

