

# 1GT101DC

## GT Series Hall-Effect Gear-Tooth Sensor

### Features

- Senses ferrous metal targets
- Digital current sinking output (open collector)
- Better signal-to-noise ratio than variable reluctance sensors, excellent low speed performance, output amplitude not dependent on RPM
- Sensor electronically self-adjusts to slight variations in runout and variations in temperature, simplifying installation and maintenance
- Fast operating speed - over 100 kHz
- EMI resistant
- Reverse polarity protection and transient protection (integrated into Hall I.C.)
- Wide continuous operating temperature range



*Representative photograph, actual product appearance may vary.*

### Typical Applications

#### Automotive and Heavy Duty Vehicles:

- Camshaft and crankshaft speed/position
- Transmission speed
- Tachometers
- Anti-skid/traction control

#### Industrial:

- Sprocket speed
- Chain link conveyor speed and distance
- Stop motion detector
- High speed low cost proximity
- Tachometers, Counters

### Description

1GT1 Series Tooth Sensors use a magnetically biased Hall effect integrated circuit to accurately sense movement of ferrous metal targets. This specially designed I.C., with discrete capacitor and bias magnet, is sealed in a probe type package for physical protection and cost effective installation.

Output is digital, current sinking (open Collector). Reverse polarity protection is standard. If power is inadvertently wired backwards, the sensor will not be damaged.

Optimum sensor performance is dependent on the following variables which must be considered in combination:

- Target material, geometry, and speed
- Sensor/target gap
- Ambient temperature
- Magnetic material in close proximity

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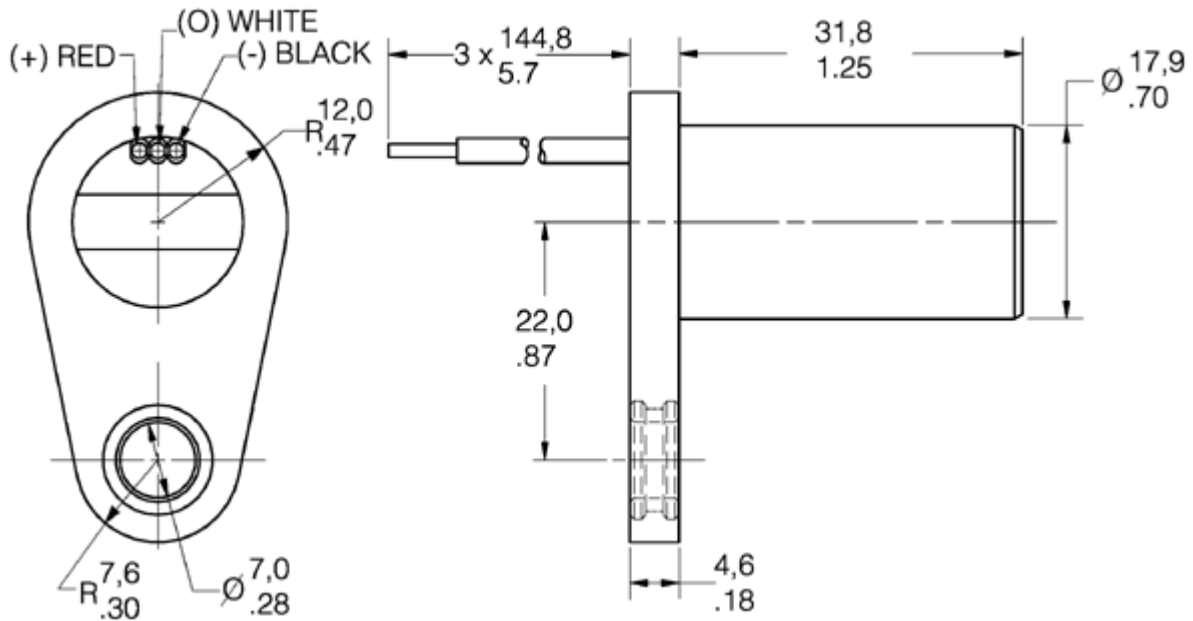
Product Specifications	
Product Type	Hall-Effect Gear Tooth Sensor
Package Style	Plastic Probe
Supply Voltage	4.5 Vdc to 24.0 Vdc
Output Type	Sink
Termination Type	Lead Wire
Operating Temperature Range	-40 °C to 150 °C [-40 °F to 302 °F]
Output Voltage	0.4 Vdc max.
Vane and Geartooth Target Material	Cold Rolled Steel, 1018 or Low in Carbon (Annealed)
GT Target RPM	10 RPM min., 3600 RPM max.
Switching Time Rise (10 % to 90 %)	15 µs max.
Switching Time Fall (90 % to 10 %)	1.0 µs max.
Operate Point	3.3 ° ± 1.25 ° [3,28 ° ± 1,13 mm]
Release Point	4.4 ° ± 2.50 ° [4,16 ° ± 2.21 mm]
Availability	Global
Comment	Values measured using 1 kOhm pull-up resistor, millitesla (gauss x 10 <sup>-1</sup> ), and geartooth target dimensions.
Supply Current (max. @ 25 °C)	20 mA
Output Current (max.)	40 mA
GT Target Min Tooth Height	5.06 mm [0.200 in]
GT Target Min Tooth Width	2,54 mm [0.100 in]
GT Target Min. Tooth Spacing	10,16 mm [0.400 in]
GT Target Thickness	6,35 mm [0.250 in]
GT Target Diameter	101,6 mm [4 in]
GT Airgap	1,02 mm to 2,03 mm [0.040 in to 0.080 in]
Leakage Current max.	10 µA
Differential	8.4 ° ± 3.70 ° [7,45 ° ± 3,34 mm]
Series Name	GT Series

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Measurement and data acquisition solutions



## **⚠ WARNING**

### **PERSONAL INJURY**

DO NOT USE these products as safety or emergency stop devices, or in any other application where failure of the product could result in personal injury.

**Failure to comply with these instructions could result in death or serious injury.**

## **⚠ WARNING**

### **MISUSE OF DOCUMENTATION**

- The information presented in this product sheet (or catalog) is for reference only. DO NOT USE this document as product installation information.
- Complete installation, operation and maintenance information is provided in the instructions supplied with each product.

**Failure to comply with these instructions could result in death or serious injury.**