Installation Instructions for 1GT101DC Hall Effect Gear Tooth Sensor

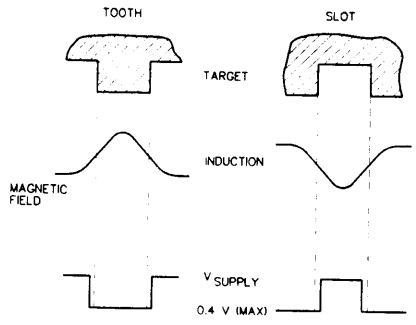
PK 8872 0

GENERAL INFORMATION

The Hall Effect Gear Tooth Sensor uses a magnetically biased Hall effect integrated circuit to accurately sense the movement of ferrous metal targets. It operates on 4.5 to 24 VDC and has reverse polarity and transient protection integral to its custom IC. The Hall Effect Gear Tooth Sensor has one current sinking, open collector, digital output. This normally high output will indicate the presence of a target by pulling its output down to a maximum of 0.4 VDC (see Figure 1).

The Hall Effect Gear Tooth Sensor comes in a probe style housing with a convenient mounting bushing.

Figure 1
Sensor output with pull-up resistor added to output.



SPECIFICATIONS

All values were measured using 1 K pull-up resistor.

Electrical Characteristics	
Supply Voltage	4.5 to 24 VDC
Supply Current	10 mA typ., 20 mA max.
Output Voltage (output low)	0.4 V max.
Output Current (output high)	10 µA max. leakage into sensor
Switching Time	
Rise (10 to 90%)	15 µsec. max.
Fall (90 to 10%)	0.5 µsec. max.
Absolute Maximum Ratings*	
Supply Voltage (Vs)	±30 VDC continuous
Voltage Externally Applied To Output (output high)	-0.5 to +30 V
Output Current	40 mA sinking
Temperature Range	
Storage	-40 to 150° C (-40 to 302°F)
Operating	-40 to 150° C (-40 to 302°F)
Switching Characteristics**	
Operate Point	3.7° ± 1.25°
Release Point	4.7° ± 2.50°
Differential Travel	8.4° ± 3.70°

*As with all solid state components, sensor performance can be expected to deteriorate as rating limits are approached; however, sensors will not be damaged unless the limits are exceeded.

**See the Reference Target section below.

REFERENCE TARGET

Characteristics will vary due to target size, geometry, location, and material. Sensor specifications were derived using a cold-rolled steel reference target. See the tables to the right for reference target configuration and test conditions.

Target	
Diameter:	4 in. (101,6 mm)
Operate Point	.13 in. ± .04 in. (3,28 ± 1,13 mm)
Release Point	.16 in. ± .09 in. (4,16 ± 2,21 mm)
Diff. Travel	.29 in. ± .13 in. (7,45 ± 3,34 mm)
Tooth Width:	.350 in. (8,89 mm)
Thickness:	.160 in. (6,35 mm)

Test Conditions	
Air gap	.005 to .080 in. (0,13 to 2,0 mm)
V supply	4.5 - 24 VDC
RPM	3600 max.

Hall Effect Gear Tooth Sensor

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ORDERING GUIDE

Catalog Listing	Description
1GT101DC	Gear Tooth Sensor

TARGET GUIDELINES

Any target wheel that exceeds the minimum specifications in the Target Dimension table can be sensed over the entire temperature range of -40° to 150°C with any sensing gap up to .080 in. (2,0 mm). This data is based on a 4 in. (102 mm) diameter wheel, rotating 10 to 3600 RPM.

TARGET DIMENSION

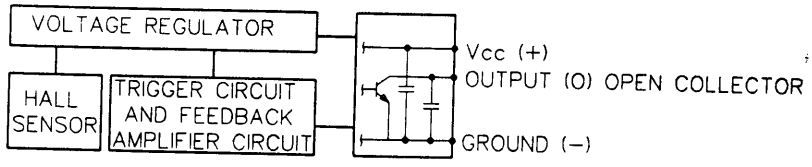
Tooth Height:	.20 in. min. (5,06 mm)
Tooth Width:	.10 in. min. (2,54 mm)
Tooth Spacing:	.40 in. min. (10,16 mm)
Target Thickness:	.25 in. (6,35 mm)

WARRANTY/REMEDY

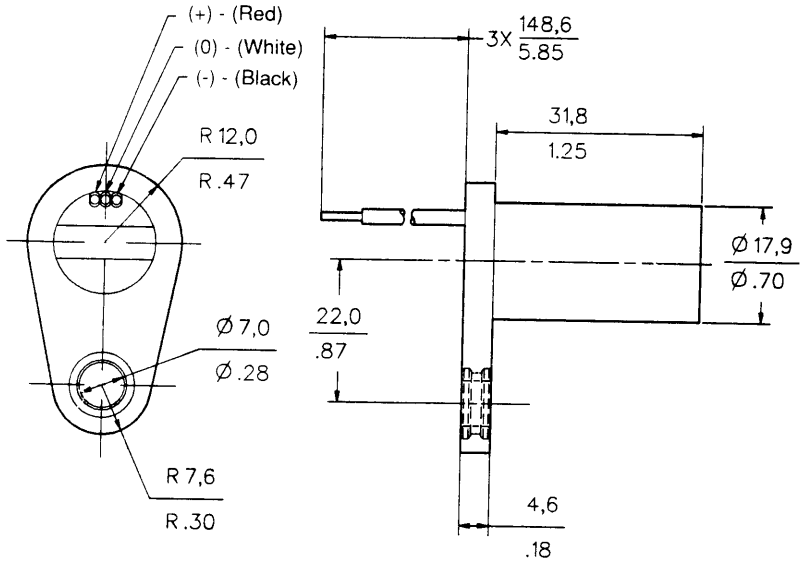
Seller warrants its products to be free from defect in design, material and workmanship under normal use and service. Seller will repair or replace without charge any such product it finds to be so defective on its return to Seller within 18 months after date of shipment by Seller. **The foregoing is in lieu of all other expressed or implied warranties (except of title), including those of merchantability and fitness for a particular purpose.** The foregoing is also Purchaser's sole remedy and is in lieu of all other guarantees, obligations, or liabilities or any consequential, incidental, or punitive damages attributable to negligence or strict liability, all by way of example.

While we provide assistance on MICRO SWITCH products, personally and through our literature, it is up to the customer to determine the suitability of the product in the application.

WIRING DIAGRAM



MOUNTING DIMENSIONS(for reference only)



NOTES

Zero speed sensors. The 1GT Series sensors are not zero speed sensors. If zero speed is a requirement, contact your Honeywell representative about our KZ Series sensors.

Initial Power-up of sensor. Because the sensor has a capacitive coupled feedback circuit, one target space must be rotated/moved past the sensor to establish the reference voltage and initialize the sensor.

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