

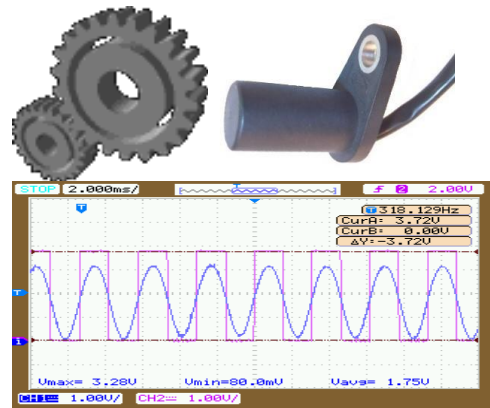
Hall Effect Gear Tooth Sensors CYGTS102DC with Sinusoid and Square Output Waves

CYGTS102DC Hall Effect Gear Tooth Sensor is designed by using a Hall-Effect sensor element, which can accurately detect the movement of ferrous metal objects. This specially designed gear tooth sensor with a biasing magnet and internal denoising filter is sealed in resin for physical protection and cost effective installation. The CYGTS102DC Sensor works according to the detection of peak magnetic field change.

This Unit functions under power supply from 4.5VDC to 24VDC. Two signals (one sinusoid wave and one square wave) are output directly through the output terminal of the operational amplifier. The sensor will not be damaged if power is inadvertently wired inversely.

Features

- Sensing ferrous metal targets
- Operational amplifier directly output signal
- Good signal-to-noise ratio
- Excellent low speed performance
- Output amplitude not dependent on RPM
- Fast operating speed, over 15kHz
- EMI resistant
- Reverse polarity protection and transient protection
- Wide operating temperature -40°C ~ +125°C.



Applications

Automotive and Heavy Duty Vehicles:

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

Industrial Areas:

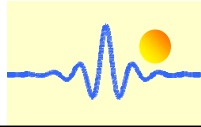
- Sprocket speed
- Chain link conveyor speed/distance
- Stop motion detector
- High speed and low cost proximity
- Tachometers, counters.

Absolute Maximum Ratings

Supply Voltage	4.5V ~ 30V
Reverse protection voltage	-30VDC
Output voltage (sinusoid wave)	0V ~ 3.3V
Output voltage (square wave)	0V ~ 22V
Load resistance (sinusoid and square waves)	100Ω, min
Operating Temperature Range	-40°C ~ +125°C

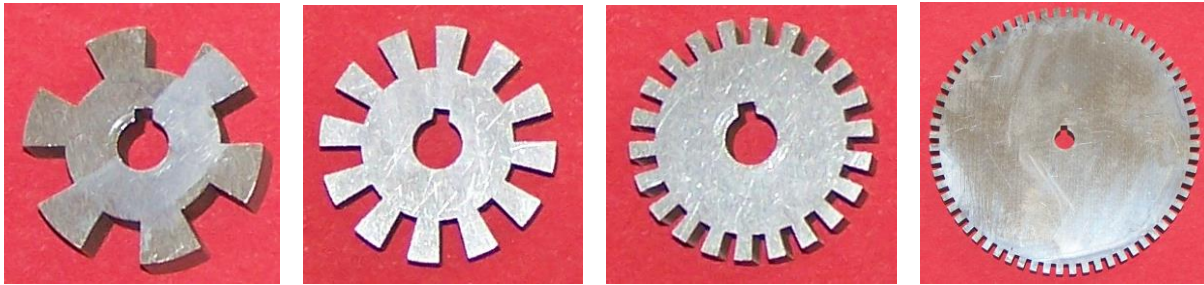
Order Guide

Part number	CYGTS102DC
Supply Voltage	4.5V ~ 24V
Load resistance (sinusoid and square waves)	100Ω, min
Best sense distance (gap)	1.0mm (use target gear 2)
Sense Distance (gap)	0.2mm ~ 3.5mm (use target gear 2)
Rotational Speed (RPM)	10 - 8000
Switching time (frequency 1kHz)	Rise time: 5,5μs max, fall time: 10μs max
Cross Reference	1GT101DC, 1GT103DC, 1GT105DC



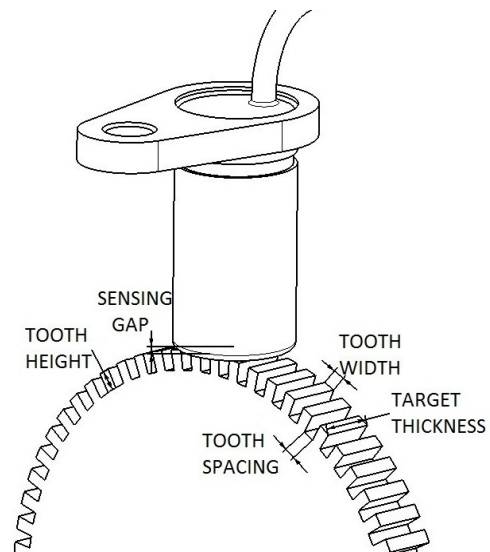
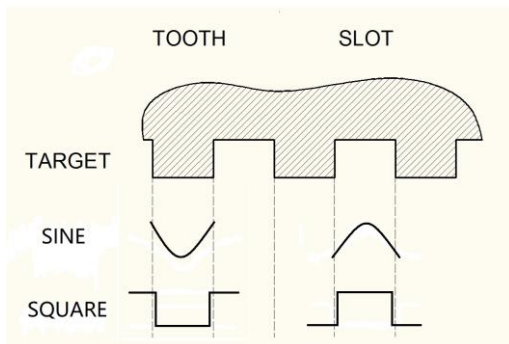
Reference Target Wheels and Sensing Gap (unit: mm)

Target wheel	Gear Module	Outer diameter	Tooth Height	Tooth Width	Tooth Spacing	Target Thickness	Teeth Number	Sensing Gap/distance
TW 1	3.833	28	5.0	7.34	7.34	8.0	6	0.2-4.0
TW 2	1.917	28	5.0	3.66	3.67	8.0	12	0.2-3.5
TW 3	1.136	28	3.0	2.0	2.0	8.0	22	0.2-2.0
TW 4	1.227	81.5	3.0	2.0	2.0	8.0	64	0.5-2.0



Characteristics will vary due to target size, geometry, location, and material. Optimum sensor performance is dependent on the following variables which must be considered in combination:

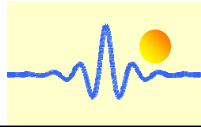
- Target material, geometry, and speed
- Gap between sensor and target
- Ambient temperature
- Magnetic material in close proximity.



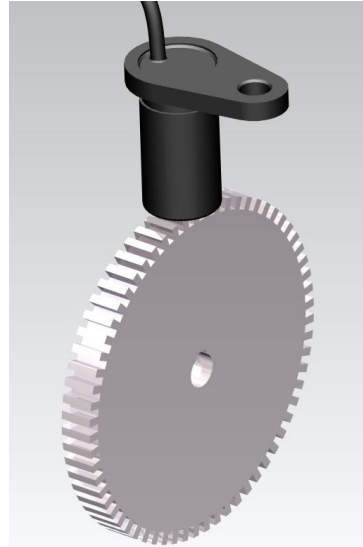
Application Notes

This sensor outputs the signal directly from the operational amplifier. Connect 4 wires as shown in the figure.

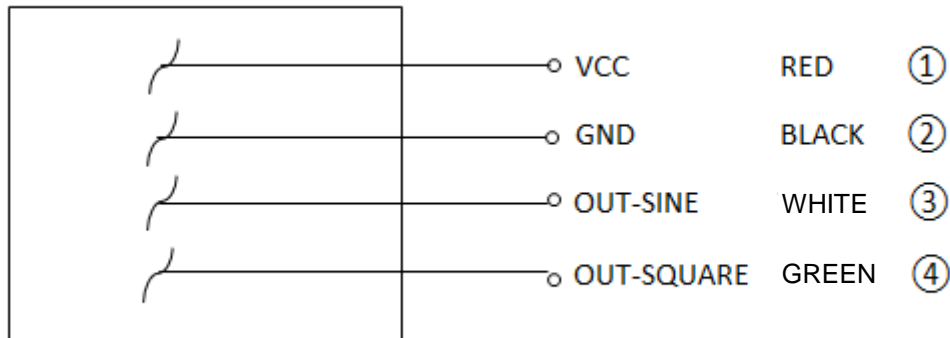
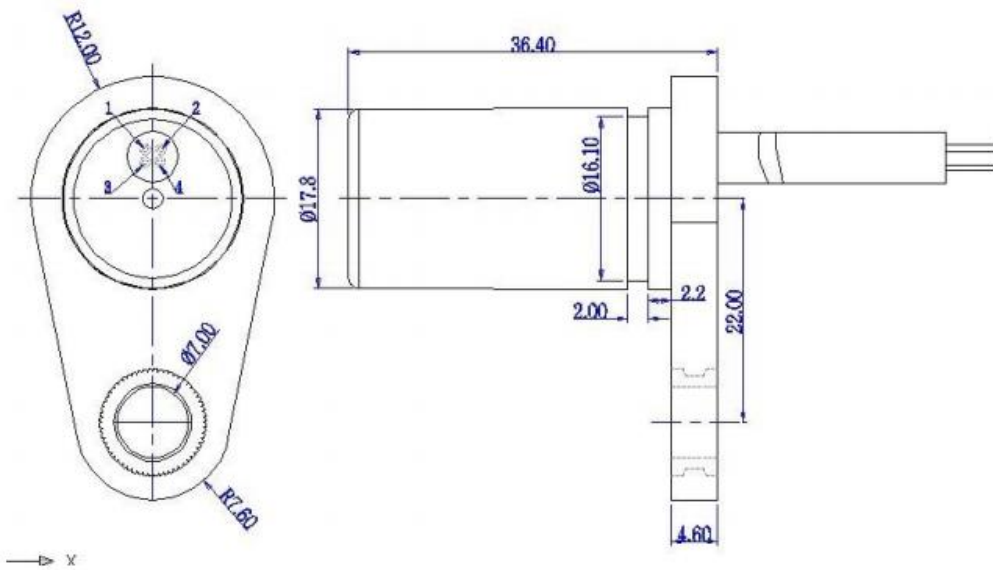


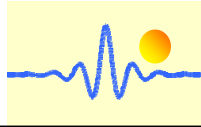


Mounting Dimensions (for reference only)



The standard length of the lead is 500mm; the cross-sectional diameter is 4mm.





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