

GZR6192D

Camshaft Phase Sensor

Hall Type

Datasheet

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Document Revision History

Revision	Description	Date
V1.0	Initial version	2022.07.01
V 1.1	Uniform template	2022.09.05
V 1.2	Optimize template	2023.03.20
V 1.3	Standard template	2024.05.28

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1. Product Description

The GZR6192 is a mature and reliable Hall effect speed sensor launched by Sencoch for the automotive market. The product mainly consists of a Hall effect chip, a permanent magnet, electronic circuitry, and external encapsulation. It outputs a square wave signal based on the detected camshaft and crankshaft rotation speed for acquisition and processing by the ECU . The product features a simple structure and good performance consistency.



1.1 Product Features

- High-precision speed sensor
- High stability
- Integrated injection molding structural solution

Utilizing imported Hall effect chips from renowned brands ensures high output accuracy and reliability. Using samarium cobalt magnets provides a constant back magnet, guaranteeing both performance and high stability. The integrated injection molding design reduces the number of parts and shortens the manufacturing process, lowering material and production costs.

1.2 Application Areas

The products are mainly targeted at the commercial vehicle and passenger vehicle markets, and are used in engine power systems to measure the speed and position of engine camshafts and crankshafts, as well as the speed in transmissions and the ABS wheel speed in braking systems.

2. Function Description

2.1 Electrical Connections

The recommended female electrical connector for this product is AMP 2050049-1 or BOSCH A 928 000 453.

CODE1 3wayE1 .

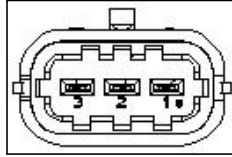


Figure 1. Pin wiring diagram

Table 1. Pin Correspondence

Serial Number	Description	Remark
1	Ground	Power input negative terminal GND
2	Signal	The product's output signal Signal
3	Power supply	Power input positive terminal 5±0.25VDC

2.2 Product Output Characteristics

The relationship between the product's output signal and the target wheel is shown in Figure 2 below.

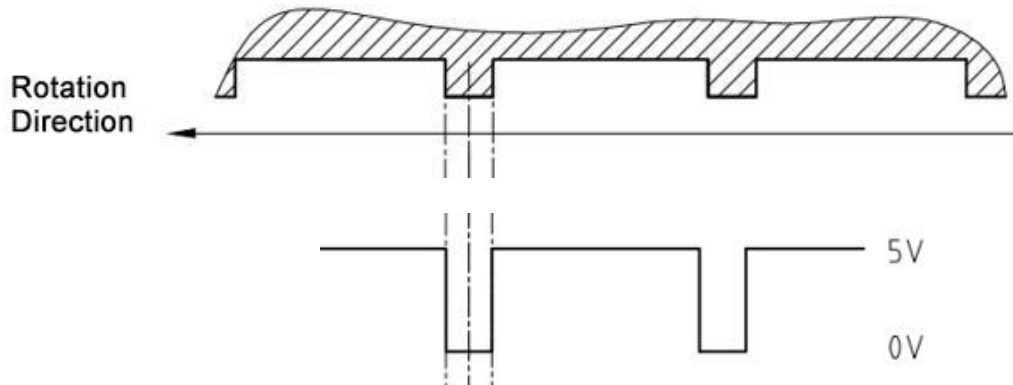


Figure 2. Schematic diagram of output signal

3. Technical Specifications

The following sensor specifications were measured at a power supply of (5±0.25)V DC and a temperature of 25°C.

3.1 Performance Indicators

Table 1. Performance Indicators

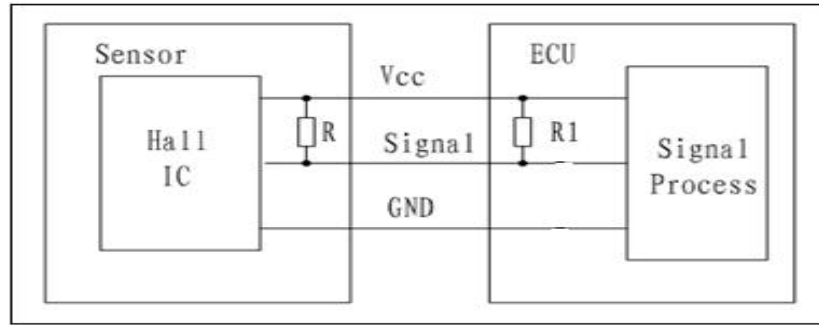
Attribute	Values	unit
Operating voltage	4.75 ~ 5.25	V
Operating current	≤1 5	mA
Output high level	≥ 4.5	V
Output low level	≤ 0.8	V
Ascent time	≤ 25	uS
Descent time	≤ 5	uS
Working air gap	0.3 ~ 1.8	m m
Operating frequency	0 ~ 5	K H z
Insulation resistance	≥10MΩ/500VDC	MΩ
Protection level	IP69K	/
Operating temperature	-40 ~ 150	°C
Storage temperature	- 40 ~ 160	°C

3.2 Electrical Characteristics

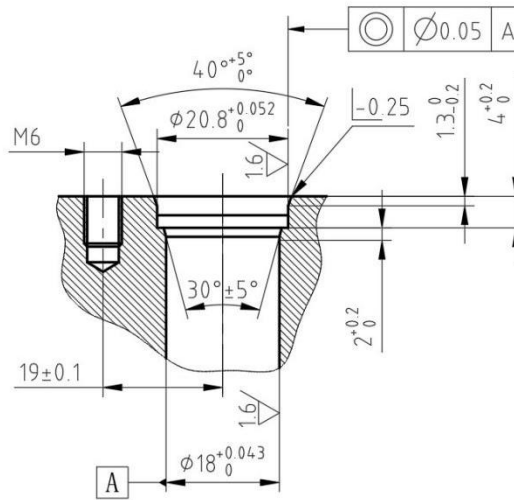
Table 2. Electrical Characteristics

Attribute	Min.	Typ.	Max.	Unit	Remark
Power supply voltage	4.75	5	5.25	V	12/24V customizable
Operating current			15	mA	
Overvoltage			24	V	
Reverse voltage			-18	V	
Output current load			20	mA	
Short-circuit current limit	30	50	80	mA	
Output load (pull-up)	1		10	kΩ	R 1

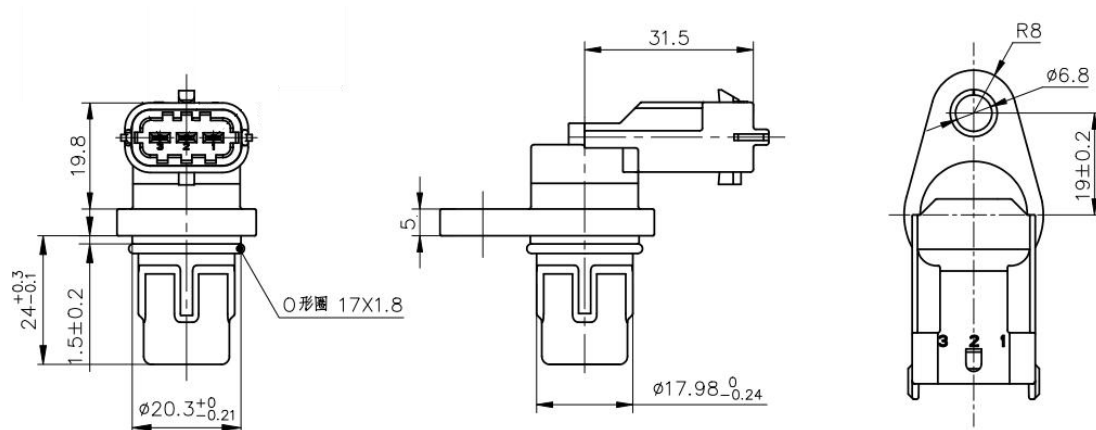
Recommended circuit for ECU interface:



4. Recommended Assembly Interface



5. Structure Specification (unit: mm)



6. Order Guide

GZR 6192D – P240 B003 W001 B02 WX

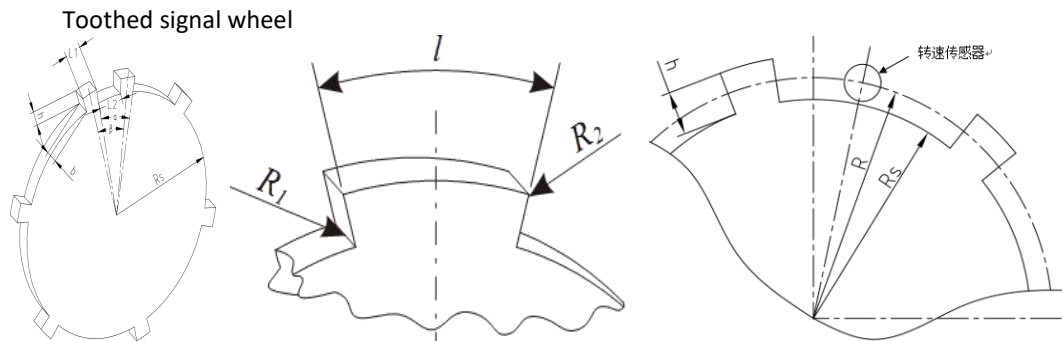
GZR	Rotation Speed Sensor Series
6192D	Product Categories
P240	Overall injection molding probe length: P240 : 24.0mm
B003	Connector: Compatible with AMP 2050049-1 , wireless
W001	Power supply and output methods 5V power supply, different duty cycle PWM voltage output
B0 2	Packaging B0 2 : Blister tray
WX	Interior Code

7. Ordering Instructions:

If you have any special requirements for the product's performance parameters and functions, please consult with our company.

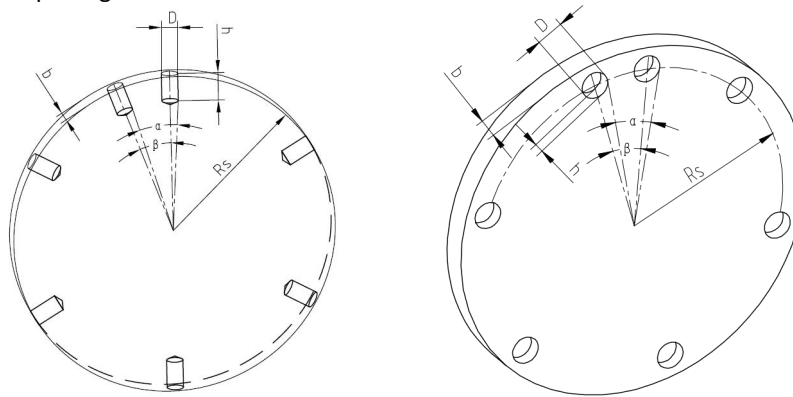
8. Precautions for Use

8.1 Requirements for using the target wheel



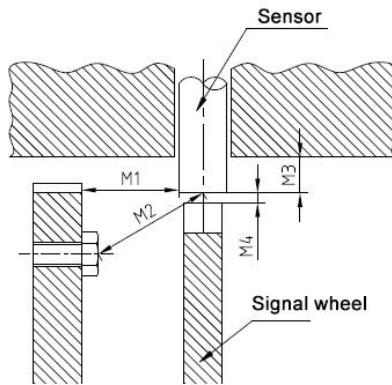
Signal wheel requirements	Radial installation	Axial installation
Tooth height h	≥5 mm	≥1 2 mm
Convex tooth thickness b	≥6 mm	≥6 mm
Tooth length l1	≥6 mm	≥6 mm
Concave tooth length l2	≥8 mm	≥8 mm
The fillet R1 at the bottom of the tooth	≤0.2	≤0.2
R2 at the tooth tip	=0	=0
Signal wheel radius Rs	≥45mm	≥45mm
Odd tooth angle α (Only effective for camshaft signal wheel)	=15 ° (Recommended value)	=20 ° (Recommended value)
Sensor Installation Instructions	When axially mounted, the center point of the sensor probe must be aligned with the center point of the tooth height. $R - R_s = h/2$	

Hole-shaped signal wheel



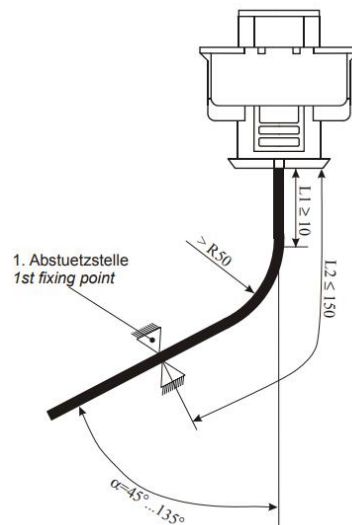
Signal wheel requirements	Radial installation	Axial installation
Hole depth h	≥ 5 mm	≥ 5 mm
Signal wheel thickness b	≥ 5 mm	≥ 5 mm
Hole diameter D	≥8mm	≥8mm
Signal wheel radius Rs	≥45mm	≥45mm
Odd tooth angle α (Only effective for camshaft signal wheel)	=15 ° (Recommended value)	=15 ° (Recommended value)

8.2 Usage Boundary Requirements



- 1) The minimum distance M1 between the sensor probe boundary and the adjacent magnetic conductor is $\geq 8 \text{ mm}$;
- 2) The minimum distance M2 between the center of the sensor probe and the adjacent protruding magnetic conductor is $\geq 10 \text{ mm}$;
- 3) The minimum distance M3 between the bottom of the sensor probe and the inner surface of the mounting hole is $\geq 8 \text{ mm}$;
- 4) Working air gap $0.3\text{mm} \leq M4 \leq 1.8\text{mm}$.

8.3 Requirements for using plugins and binding



- 1) The distance L1 from the bend in the sensor connector cable to the connector sheath body is $\geq 10 \text{ mm}$;
- 2) The distance L2 from the first binding point of the sensor-to-plug cable to the connector sheath body is $\leq 150 \text{ mm}$.

8.4 Other Requirements

- 1) The sensor should only be unpacked before it is installed on the engine . For applications requiring oil seals, it is recommended to apply grease to the sealing ring before assembly.
- 2) The sensor is designed for use in internal combustion engines or as part of a complete machine that use gasoline, diesel, LNG or CNG as fuel. For use in other applications, please consult with our company.
- 3) The sensor mounting torque is 8 ± 2 Nm (when using 8.8 grade M6 × 12 bolts) ;
- 4) Standard packaged speed sensors can be transported using ordinary conveyor systems. Please note: Protect the product from strong magnets, moisture, impact, sun damage, and pressure during transportation .
- 5) Please feel free to contact us if you have any questions.

■ Please confirm under actual usage conditions.

Since this specification is for a single product, please verify the performance and quality under actual use to improve reliability.