

NCZ20 | Speed Sensor



Product Overview

- * Single-channel speed sensor based on Hall principle
- * Totally self-checking functions
- * Non-contact measurement of speed of nonferromagnetic gear is simple and reliable, and is free from maintenance
- * Width measuring range: 0Hz~15kHz; considering of ultra slow motion detection and high speed rotation measurement
- * Stainless steel shells as well as corrugated tube imported from Europe are adopted, and they are applicable to harsh application environments
- * Simple flange installation
- * Can be customized according to customer requirements

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Environmental parameters

Service conditions	
Altitude	≤2500m
Operating temperature	-40°C~+125°C
Relative humidity	≤95%(the average minimum temperature of this month is 25°C)
Impact and shock	meet the installation requirements of class 3 axle in GB/T 21563-2008
Protection grade	IP68(head), IP67(connector)

Performance parameter

Electrical Parameters	
Power voltage	DC7V~DC24V, nominal voltage DC12V
Working frequency	0Hz ~15kHz
Working air gap	0.1mm~1.5mm, standard air gap 0.8mm
Number of output channels	Single channel
Output waveform	Square wave, rise time and fall time are both no more than 10μs
Load resistance	Resistance is not less than 1 kΩ, capacitance is not more than 22000 PF (testing cable length: 3 m)
High level	≥Vcc-2.5V (Vcc is power voltage)
Low level	≤0.3V
Duty ratio	50%±20%
No-load power consumption current	≤35mA
Coil resistance	10.8× (1±20%) Ω
Coil inductance	1.8× (1±20%) mH · (testing conditions: 5kHz,0.1VAC)
Coil driving current	≥500mA
Waveform of driving signals	Sine wave or square wave

Performance parameter

Electrical Parameters	
Range of self-checking signals	1Hz~5kHz
Insulation resistance	A 500V megger is used for testing. Insulation resistances between all cable core (excluding shielded wire) and shell should be no less than 50MΩ.
Insulating strength	AC1500V, 50Hz can be taken among all cable core (excluding shielded wire) and shell for 60s without breakdown or flashover.
EMC	Accord with GB/T 24338.4-2009
Protection function	Power polarity protection and output short circuit protection

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Performance parameter

Mechanical Parameters	
Modulus of speed measuring gear	2 (other modulus can be customized according to customer requirements)
Effective gear width	≥10mm(radial movement shall be considered, and it is suggested to be no less than 12mm)
Form of speed measuring gear tooth	Involute teeth (meet the requirements of GB/T 1356 or DIN 867)
Material of speed measuring gear	Low carbon magnetized steel
Material of sensor shell	Stainless steel
External dimension	Referring to figure 1, line length can be customized according to customer requirements

Electric Connector Parameters

Auxiliary connector	YGC-JL91K5TYF
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Cable and corrugated tube Parameters

Cable	4-core integral shielded cable
Outside diameter of cable	5.4mm
Cross section of cable core	0.5mm ²
Minimum bending radius of cable	≤6D
Outside diameter of corrugated tube	13mm
Static/dynamic bending radius of corrugated tube	20mm/50mm

Fire-proof Performance

Fire-proof performance of non-metallic materials	Meet the requirements of standard DIN 5510-2 : 2009
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Outline Drawing

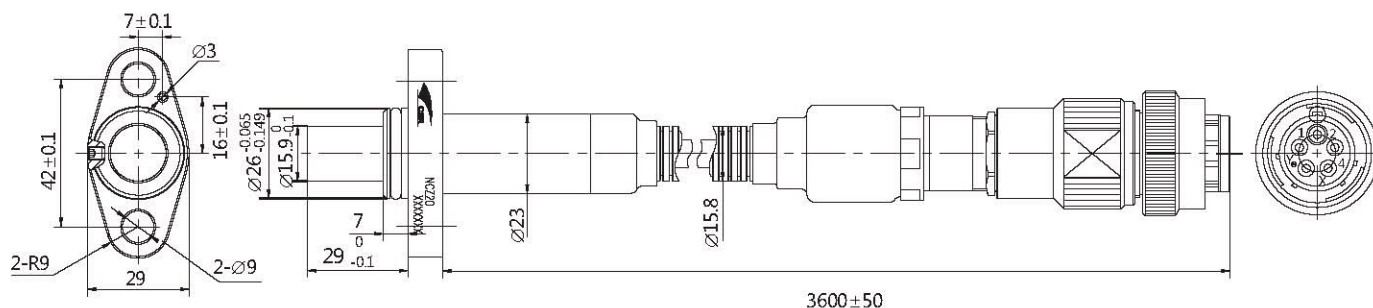


Fig.1 Outline Drawing

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Electrical Interface

Table 1 Definition of Electrical Interface

Number	Output Functions	Core Definition
1	Power supply +	Contact pin 3
2	Power ground (0V)	Contact pin 1
3	Signal channel	Contact pin 2
4	Self-inspection TEST	Contact pin 4

Mounting Requirements

- * Recommended to tighten by M8 bolts;
- * Cable laying requirements: sensor conductors and subsequent connecting lines should keep away from large-scale electrical equipment and power lines, and are forbidden to be winded with power lines or transmit in the same pipeline;
- * Wire according to the definition of the electrical interface strictly, make sure of right wiring without short circuit and break circuit;
- * Fixed position of connector: recommended to be mounted on vehicle.

Standards

- * GB/T 2423.1-2008 Environmental testing for electric and electronic products----Part 2: Testing methods Test A: Low temperature (IEC 60068-2-1: 2007 , IDT)
- * GB/T 2423.2-2008 Environmental testing for electric and electronic products----Part 2: Testing methods Test B: High temperature (IEC 60068-2-2 : 2007 , IDT)
- * GB/T 2423.4-2008 Environmental testing for electric and electronic products----Part 2: Testing methods Test Db: Alternating temperature and humidity (IEC 60068-2-30: 2005 , IDT)
- * GB 4208-2008 Enclosure protection class (IP code) (IEC 60529:2001 , IDT)
- * GB/T 24338.4-2009 Rail transit---electromagnetic compatibility Part 3-2: Equipment for rolling stock (IEC62236- (IEC62236- 3-2: 2003 , MOD)
- * GB/T 25119-2010 Rail transit--- electronic devices for rolling stock
- * TB/T 2760.2-2010 Locomotive speed sensor Part 2: Hall effect speed sensor
- * DIN 5510-2:2009 Preventive fire protect in railway vehicle parts 2: Fire behavior and fireside effects of material

Main Application Fields and Achievements

Rail transit braking system

Main application achievements: Changsha Metro