SEMIC TRADE

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NCZ16 | Speed Sensor

Product Overview

- Double-channel speed sensor based on Hall principle
- Non-contact measurement of speed of nonferromugnetic gear is simple and reliable, and is free from maintenance
- Domestic products of Tamagawa TTS5840N633 speed sensors
- Phase difference of output signals takes 90°for direction distinguishing
- Stainless steel shell, and they are applicable to hash 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℃~+125℃
Relative humidity	≤95%(the average minimum temperature of this month is 25℃)
Impact and shock	meet the installation requirements of class 3 axle in GB/T 21563-2008
Protection grade	IP68

Performance parameter

Electrical Parameters	
Power voltage	DC9.6V~DC30V, nominal voltage DC12V
Working frequency	0Hz ~7kHz
Working air gap	0.1mm~1.5mm, nominal voltage 0.8mm
Number of output channels	Two channels
Output waveform	Square wave, rise time and fall time are both no more than 3μs
Load resistance	≥1kΩ
High level	≥8V (load: 1 kΩ)
Low level	≤1.0V
Duty ratio	50%±15%
Phase difference	90°±36°(the definition of direction refers to figure 1)
No-load power consumption current	≤45mA
Insulation resistance	A 500V megger is used for testing. Insulation resistances between all cable core and shielded wire and between all leading wire (including shielded wire) and shell should be no less than 100MΩ

Electrical Parameters	
Insulating strength	AC2000V, 50Hz can be taken among all cable core and shielded wire, between all leading wires (including 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	3(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 magnetic steel
Material of sensor shell	Stainless steel
External dimension	Referring to figure 2, line length can be customized according to customer requirements

Cable Parameters	
Cable	4-core integral shielded cable
Outside diameter of cable	16mm
Cross section of cable core	2.0mm²
Minimum bending radius of cable	≤6D

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

Outline Drawing

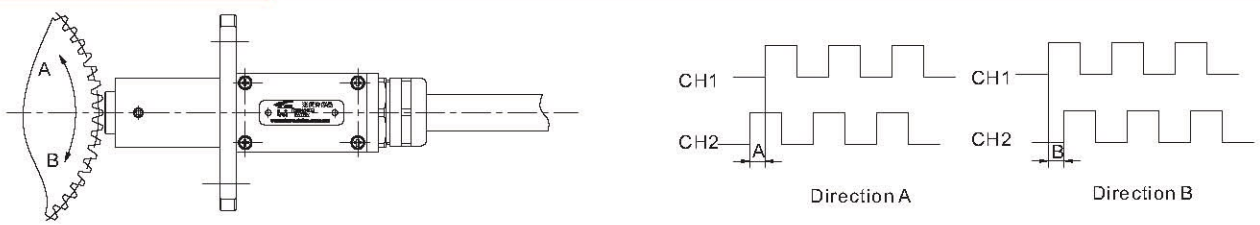

Fig.1 Rotation Direction Definition and Phase Relationship

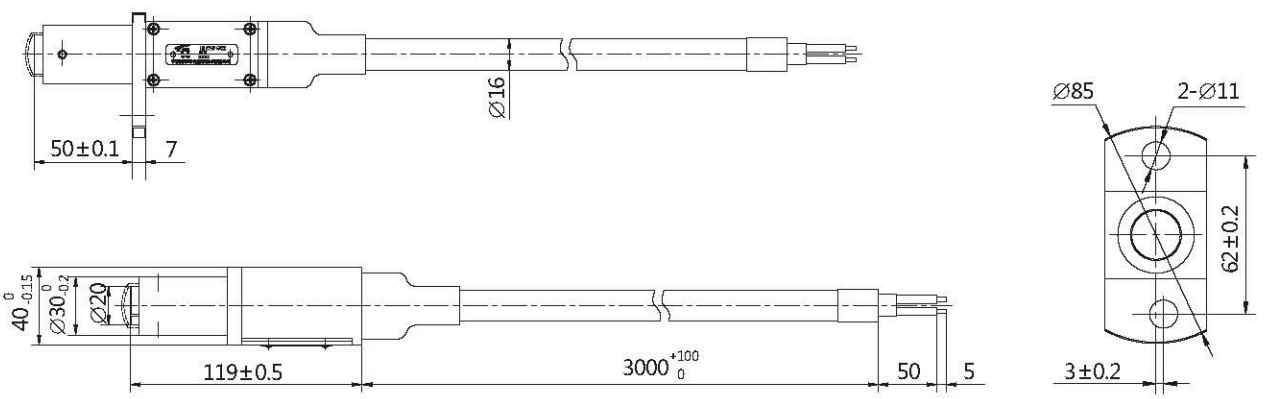

Fig.2 Outline Drawing

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Electrical Interface

Table 1 Definition of Electrical Interface

Number	Output Functions	Core Definition
1	Power supply +	Red core wire
2	Power ground (0V)	Black core wire
3	Signal channel 1 (CH1)	White core wire
4	Signal channel 2 (CH2)	Green core wire
5	Shield	Shield

Mounting Requirements

- Recommended to tighten by M10 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;
- Grounding way of shielded wire: recommended to be grounded on the control system through one end.

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 (IEC 62236-3-2: 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 traction system
Main application achievements: HXD3 series locomotive

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