

TQG19D8

Series
Speed Sensor



Product Overview

- * Single-channel speed sensor based on Hall principle
- * Non-contact measurement of speed of nonferromagnetic gear is simple and reliable, and is free from maintenance
- * Width measuring range: 0Hz~10kHz; considering of ultra slow motion detection and high speed rotation measurement
- * Stainless steel shell and $\Phi 13$ integral cables are adopted, and they are applicable to harsh application environments
- * Simple flange installation
- * Can be customized according to customer requirements

Environmental parameters

Service conditions

Altitude	$\leq 2500\text{m}$
Operating temperature	$-40^{\circ}\text{C} \sim +125^{\circ}\text{C}$
Relative humidity	$\leq 95\%$ (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)
Salt spray resistance	meet the requirements of 96h in GB/T 2423.17-2008

Performance parameter

Electrical Parameters

Power voltage	DC10V~DC30V, nominal voltage DC15V
Working frequency	0Hz ~10kHz
Working air gap	0.1mm~1.5mm, standard air gap 0.9mm
Number of output channels	Single channel
Output waveform	Square wave, rise time and fall time are both no more than $3\mu\text{s}$
Load resistance	$\geq 1\text{k}\Omega$
High level	$\geq V_{\text{CC}} - 1.5$ (V_{CC} is power voltage)
Low level	$\leq 1.0\text{V}$
Duty ratio	$50\% \pm 10\%$
No-load power consumption current	$\leq 35\text{mA}$
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 $50\text{M}\Omega$
Insulating strength	AC1500V, 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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Mechanical Parameters	
Modulus of speed measuring gear	Modulus is no less than 1.25, the recommended value of 2
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	Harting connector
Cable Parameters	
Cable	6-core integral shielded cable
Outside diameter of cable	13mm
Section area of cable	0.6mm ²
Minimum bending radius of cable	≤6D
Fire-proof Performance	
Fire-proof performance of non-metallic	Meet the requirements of standard DIN 5510-2 : 2009

Outline Drawing

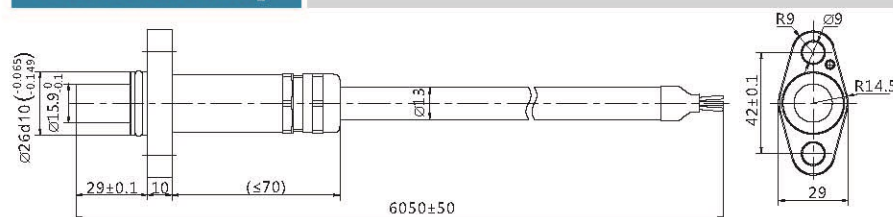


Fig.1 TQG19D8 Speed Sensor Outline Drawing

Electrical Interface

Table 1 Definition of Electrical Interface

Number	Output Functions	Core Definition	Connector Definition
1	Power supply +	Red core wire	Contact pin 1
2	Power ground(0V)	Black core wire	Contact pin 2
3	Signal channel	Yellow core wire	Contact pin 4
4	Shield	Shield	Ground end

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 wound 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;
- * 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/T 2423.17-2008 Environmental testing for electric and electronic products----Part 2: Testing methods Test Ka: Salt spray (IEC 60068-2-11:1981, 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

Main Application Fields and Achievements

Rail transit braking system

Main application achievements: Guangzhou Metro