SPECIFICATIONS

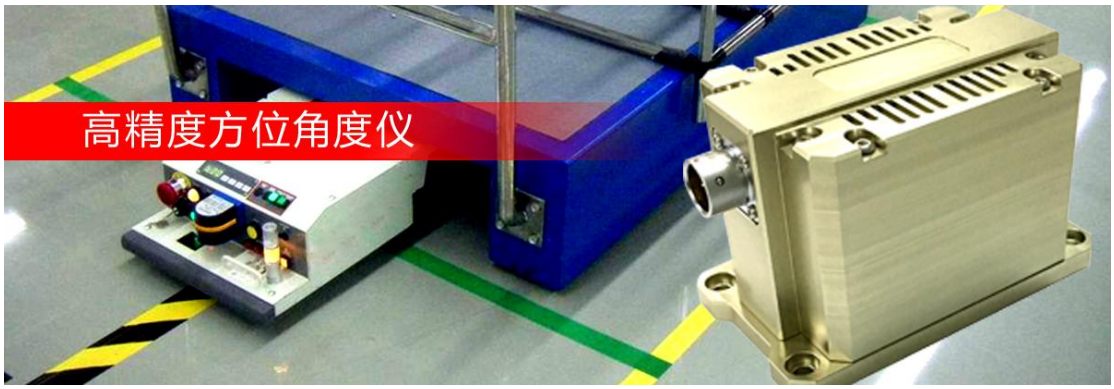
Item No.：TL766D

Desc.：Angular Gyro Sensor

Production implementation standard reference

- Enterprise quality system standards: ISO9001: 2008 standard (certification number: 128101)
- Tilt sensor production standards: GB / T 191 SJ 20873-2003 inclinometer general specification of Level
- The Academy of metrology and quality inspection Calibrated in accordance to: JJF1119-2004 Electronic Level calibration Specification
- Software development reference standard: GJB 2786A-2009 military software development General requirements
- Product environmental testing standards: GJB150
- Electromagnetic anti-interference test standards: GB / T 17626
- Version:Ver.01
- Date: Sep 24th, 2016

TL766D- Angular Gyro Sensor



General Description

TL766D is RION company newly developed three axis angle instrument based on latest MEMS inertial measurement platform , it can simultaneously output Moving carrier's horizontal angle , vertical angle and horizontal azimuth .

The internal integration of the triaxial accelerometer and triaxial angular rate of the inertia unit, by integrating the angular velocity of the object, and then with the attitude angle of the multi model data fusion, can real-time update of the horizontal azimuth output .

This product is specially used for robot car, AVG vehicle azimuth orientation, attitude control and other related applications of the UAV, instead of the traditional robot vehicle magnetic bar guide shortcomings, no need at the site layout of magnetic stripe, is the necessary navigation components for the next generation of robot vehicle automatic tracing and driving.

Key Features

- 3-axis attitude angle output
- Strong vibration resistance
- Light weight
- Long life,strong stability
- Cost-effective
- All solid state
- Compact & light design
- RS232/RS485I output optional
- DC9~36V power supply

Application

- AGV truck
- Car Navigation
- 3D virtual reality
- Platform stability
- Auto safety system
- UAV
- Turck-mounted satellite antenna equipment
- Industrial control
- Robot

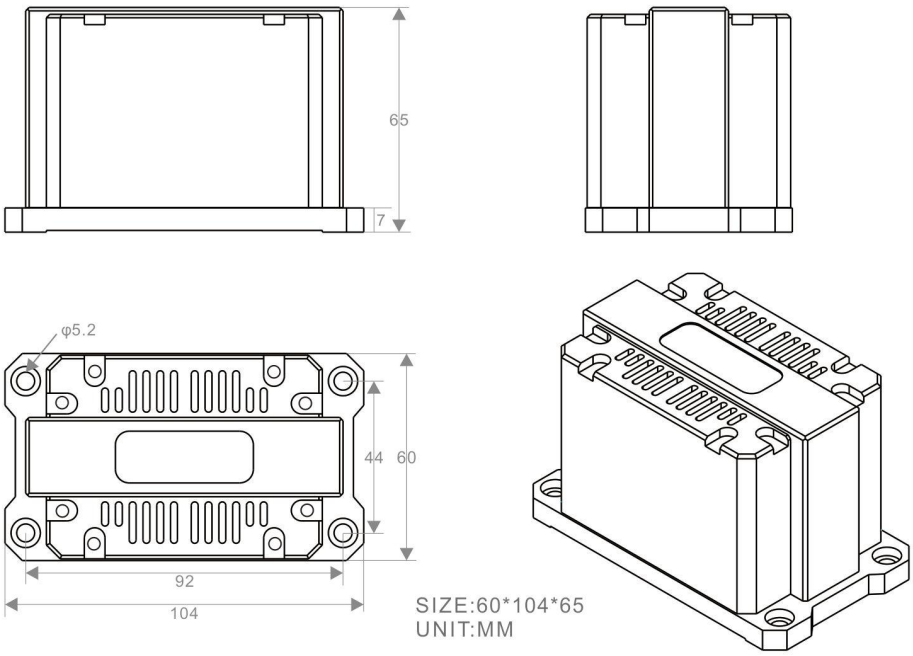
Technical Data

Parameters	TL766D
Mesuring axis	X、Y、Z（Horizontal angle, vertical angle , horizontal azimuth）
Acquisition bandwidth (Hz)	>100
Measuring range （°）	Horizontal angle ：±180 Vertical angle：±90 Azimuth：±180
Resolution（°）	0.1
Nonlinear	0.1% of FS
Max angle rate (°/s)	≥300
Starting time（s）	20（Static）
Input Voltage(V)	+9~36V
Current (mA)	60(12V)
Working Temp.(℃)	-40 ~ +85
Storage Temp(℃)	-40 ~ +85
Vibration（g）	5g~10g
Impact（g）	200g pk，2ms，½sine
Working life	10 years
Output rate	5Hz、15Hz、25Hz、50Hz can set
Output signal	RS232 or RS485
MTBF	≥50000 hours /times
Insulation resistance	≥100 Megohm
Impact resistance	100g@11ms、**3Times/Axis(half sinusoid)**
Anti-vibration	10grms、10～1000Hz
Protecting	IP67
Connector	**5 Pin air-plug , matched with 1m cable**
Weight	570g(without cable)

Ordering information

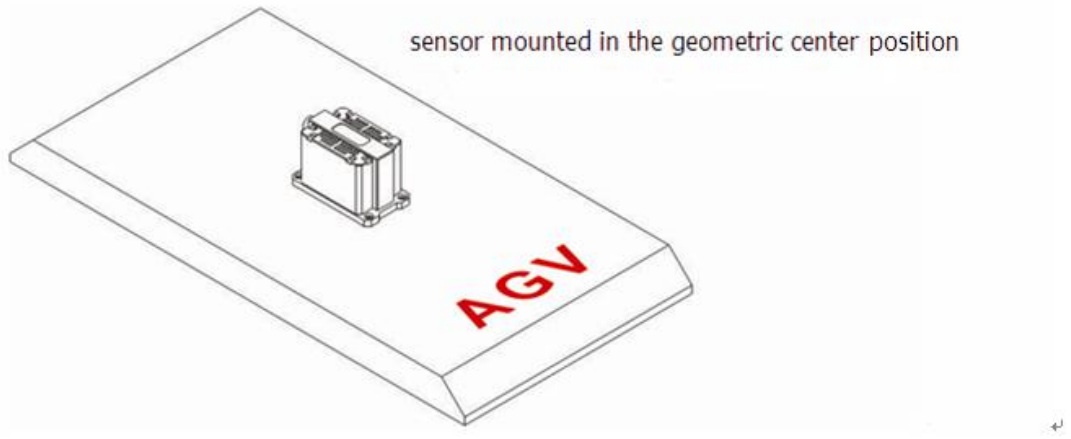
TL766D-232	RS232 output mode
TL766D-485	RS485 output mode

Dimension



Notice

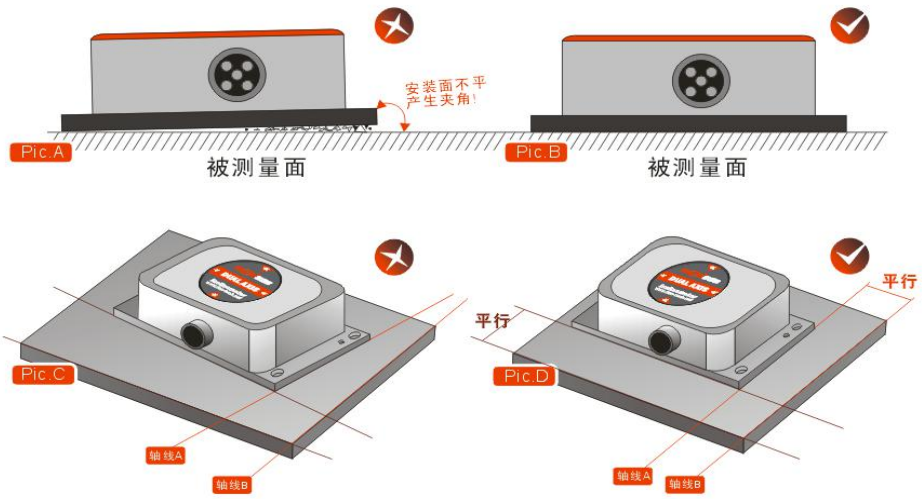
1.The angular gyro sensor should be mounted in the center position of the measured object , in order to reduce the influence of linear acceleration on the measurement accuracy.



2. The installation of the instrument should be kept parallel to the surface of the measured object, and reduce the influence of the dynamic and acceleration on the angle meter. Incorrect installation will lead to measurement errors, with particular attention to "surface" and” line "

1）The mounting surface of the instrument fixing must be close, smooth and stable with the measured surface. If the mounting surface is not smooth, the angle error of angle measurement can be caused easily. See figure Pic.AB

2)The axis of the instrument must be parallel to the axis of measurement, and the two axis should not be included angle as far as possible , see figure Pic.CD

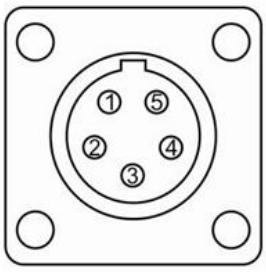


3. Do not shake violently during the use of the product, avoid violent vibration, away from the vibration source (if you can not avoid please install the shock absorber), so as not to affect the product measurement accuracy;

4. Try to avoid a sharp acceleration, arrest, sharp turn angular velocity greater than 300 DEG /s movement during use, so as not to affect the measurement precision of products.

5. After the switch is started, the angular gyro sensor needs to be static 20S, and the initial value of the measuring unit is restored, so as to ensure the measurement precision of the product. If there is no such operation, the product can also be used normally, but can not reach the normal precision standard .

Electrical Connection



Pins	RS232	RS485
1	Power	Power
2	RXD	D+
3	TXD	D-
4	GND	GND
5	Factory using only	Factory using only

Brand：Weipu Electronic
Socket model：SF1213/P5
Connector model：SF1210/S5

Product Protocol

1.DATA FRAME FORMAT：

（8 bits date，1 bit stop，No check，Default baud rate 9600）

Identifier (1byte)	Date Length (1byte)	Address code (1byte)	Command word (1byte)	Date domain	Check sum (1byte)
68H					

Identifier：Fixed68H

Data length：From data length to check sum（including check sum）length

Address code：Accumulating module address，Default :00

Date domain will be changed according to the content and length of command word

Check sum：Data length、Address code、Command word and data domain sum,No carry.

二、命令字解析

Desc.	Meaning/Example	Description
0X84	Sensor auto output angle E.g: **68 0D 00 84 00 20 10 10 58 00 01 80 00 AA**	Data domain（9byte） 00 20 10 10 58 00 04 05 00 00 20 10: 3 characters means X axis horizontal angle 10 58 00: 3 characters means Y axis vertical angle 01 80 00: 3 characters means Z axis azimuth angle The angle on the left example is : X axis angle = 020.10deg Y axis angle =-058.00 deg Z axis angle = 180.00 deg AA : check sum , the sum of all the data in hexadecimal without prefix 68 , it is effective to take the low position if for the decade .
0X0B	**Setting Communication rate** **E.g: *68 05 00 0B 03 13*** The command setting is effective after power off then restart (power off with save function)	Data domain（1byte） Baud rate：default :9600 00 means 2400 01 means 4800 02 means 9600 03 means 19200 04 means 38400 05 means 115200
0X8B	Sensor answer reply command E.g: 68 05 00 8B 90	Data domain（1byte） Data domain in the number means the sensor response results 00 Success FF Failure
0X0C	Setting sensor output mode Auto output mode: The sensor with power on can Automatically output X,Y，Z angle , output rate 25HZ. (Power off with save function	**Data domain** 01 5Hz Auto output mode 02 15Hz Auto output mode 03 25Hz Auto output mode 04 35Hz Auto output mode 05 50Hz Auto output mode

	) E.g: ***68 05 00 0C 00 11***	
0X8C	Sensor answer reply command E.g: **68 05 00 8C 00 91**	Data Domain（1byte） Data domain in the number means the sensor response results 00 Success 01 FF Failure