

WTS Series analog voltage output inclinometer

Product introduction

Woosens WTS series analog voltage output inclinometer module which made by high- accuracy accelerometer MEMS device and standard MCU, built-in advanced anti-vibration filtering algorithms. The product has undergone strict production calibration, factory inspection, to ensure excellent product consistency and reliability.



WOOSENS WTS series analog voltage output inclinometer module adopts 0~5V standard interface, which can be directly connected to various industrial control hosts. It has excellent load capacity and anti-interference ability. The sensor adopts M12 4-core aviation socket to ensure the flexibility in use and reliable waterproof.

I Features

- High precision, high stability
- 3D MEMS Sensor
- Power supply: 9~35V
- IP67 protection
- Operating temperature-40-85°C
- RoHS

I Application

- Angle measurement
- Engineering machinery
- Equipment and Instrument Status Monitoring
- Rotation Direction Measurement

Product specification

Electrical Specification

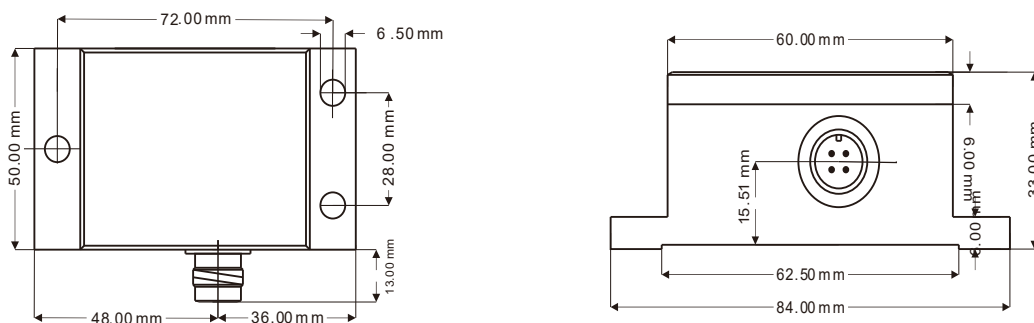
| Parameter | Condition | Minimum | Typical | Maximum | Unit |
|-----------------------|--------------|---------|---------|---------|------|
| Power supply | Wide voltage | 9 | 12 | 35 | V |
| Operating current | | 20 | | 30 | mA |
| Operating temperature | | -40 | | +85 | °C |
| Store temperature | | -40 | | +100 | °C |

Performance Specification

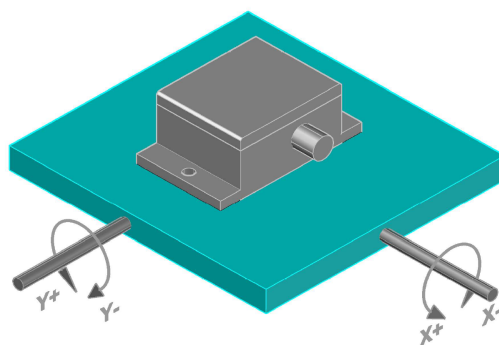
| Parameter | Condition | Specification |
|----------------------|--------------------------------|--|
| Measuring axis | | X-Y |
| Measuring range | | $\pm 15^\circ / \pm 30^\circ / \pm 90^\circ$ |
| Output voltage @ 0° | | 2.5V |
| Output voltage range | | 0.5~4.5V |
| Frequency response | | 10Hz |
| Temperature drift | -40~80°C | 0.008°/°C |
| Sensitivity | $\pm 15^\circ$ Measuring range | 8.595V/g |
| | $\pm 30^\circ$ Measuring range | 4V/g |
| | $\pm 90^\circ$ Measuring range | 2V/g |
| Weight | | 240g |

Note: All parameters are measured at room temperature 25°C.

Mechanical Characteristic



Installation direction



Interface Definition

The pluggable connector is P type, the module connection cable is (115-67000-0000)

| Output interface | Brown | White | Blue | Black |
|------------------|-------|-------|-------|-------|
| Single-Axis | X-OUT | X-OUT | NC | NC |
| Dual-Axis | X-OUT | X-OUT | Y-OUT | Y-OUT |

Formula: Transform Voltage Into Angle

Sensitivity = $4V/(2*\sin(\max \text{ Angle})g)[V/g]$ Angel(°) = $\arcsin((V_{out}(@\text{Angle})-V_{out}(@0°))/V_{sensitivity})$

Example: Measuring range is $\pm 90^\circ$, Sensitivity is 2V/g, the actual measurement X axis output voltage is 3.5V, Output voltage @ 0° is 2.5V, so Angle(°) = $\arcsin((3.5-2.5)/2) = 30^\circ$

Ordering information

| Measuring range | Measuring axis | Part number |
|-----------------|-----------------------|---------------------------|
| $\pm 15^\circ$ | Single-Axis/Dual-Axis | WTS111-L15A / WTS121-L15A |
| $\pm 30^\circ$ | Single-Axis/Dual-Axis | WTS111-L30A / WTS121-L30A |
| $\pm 90^\circ$ | Single-Axis/Dual-Axis | WTS111-L90A / WTS121-L90A |

Note: All Specifications are subjected to change without notice.