AIT




# STS-3624-R08 Series
# Dual Axis Digital Output Inclination Switch

# Technical Manual

**V3.0**

# Dual Axis Relay Output Inclination Switch

## STS-3624-R08

## FEATURES

- Dual-axis inclination monitoring optional
- Alarm threshold can be set arbitrarily
- Single line output alarm
- Wide voltage input 9~36V
- Support external zero setting function
- High vibration resistance >2000g
- High resolution : 0.01°
- Wide-temperature operation -40° C to +85° C
- Accuracy: 0.1°
- IP67 protection

## APPLICATIONS

- Hydraulic lift table
- High voltage power line tower monitoring
- Aerial work vehicle
- Cloud platform leveling
- Tilt-based

## DESCRIPTION

STS-3624-R08 series is a dual-axis inclination switch with a measuring range of ±90° introduced by AIT Sensing. When the measured inclination is greater than the alarm threshold value, the output line becomes closed (can also be disconnected), usually if the measured inclination does not exceed the alarm threshold value, the output line is normally open (can also be normally closed). The alarm threshold value can be set according to the actual situation of the user. The product is small in size, high in consistency and stability, and the working temperature reaches industrial level -40℃-85℃. This product supports external zero setting function, after installation in the use of the environment, without connecting to the computer through the serial port, you can also realize the zero setting, it is a cost-effective tilt switch.

## SPECIFICATIONS

**Table 1.**

| Parameter | Min. | Typ. | Max. | Unit/Note |
|---|---|---|---|---|
| Measurement Range | | ＜±90 | | ° |
| Accuracy | | 0.1（＜±80） | 0.2（±80-90） | ° |
| Measurement Axis | | X, Y | | |
| Alarm Axis | | X, Y | | |
| Zero Temperature Drift | -40 | ±0.01 | 85 | °/℃ |
| Response Frequency | | 100 | | |
| Communication Cable | 10-core cable, single 0.15mm² | | | |
| Weight | 220g（cable 1.5m,without package） | | | |

**Table 2.**

| Parameter | Min. | Typ. | Max. | Unit/Note |
|---|---|---|---|---|
| Power Supply Voltage | 9 | 12 | 36 | V |
| Working Current | | 40 | | mA(Horizontal no-load) |
| Operating Temperature | −40 | | 85 | °C |
| Storage Temperature | -55 | | 100 | °C |

Resolution: The smallest change in the measured value that the sensor can detect and distinguish within the measurement range.

Accuracy: The root mean square error of the actual angle and the sensor measurement angle measured multiple times (≥16 times).

## ELECTRICAL CONNECTIONS

**Table 3.**

| Wiring Definitions | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| RED | BLACK | GREEN | YELLOW | WHITE | PURPLE | BROWN | ORANGE | GRAY |
| 1 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| VCC DC 9-36V | GND | Receive RXD | Send TXD | X axis OUT | | Y axis OUT | | DC 9-36V Zeroing |

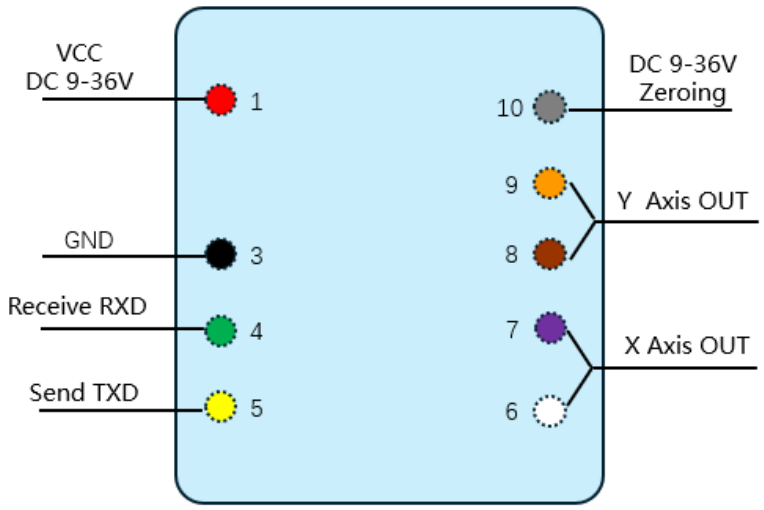
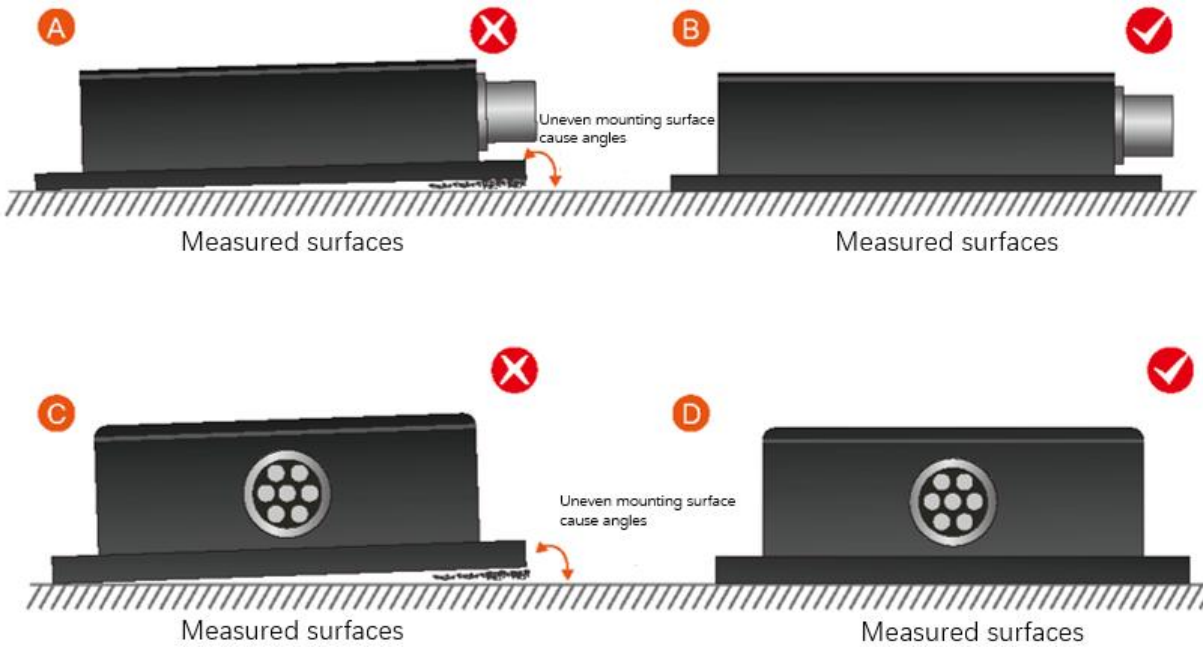



Figure 1. Pin Names

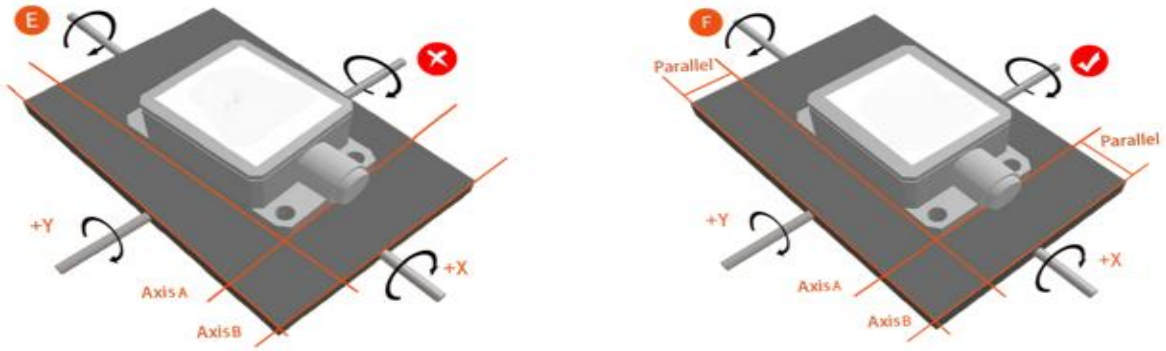
## INSTALLATION

The correct installation method can avoid measurement errors. When installing the sensor, please do the following:

First of all, make sure that the sensor mounting surface is completely close to the measured surface, and the measured surface should be as level as possible. There should be no included angles as shown in Figure A and Figure C. The correct installation method is shown in Figure B and Figure D.




Secondly, the bottom line of the sensor and the axis of the measured object cannot have an angle as shown in Figure E, and the bottom line of the sensor should be kept parallel or orthogonal to the axis of rotation of the measured object during installation. This product can be installed horizontally or vertically (vertical installation needs to be customized), and the correct installation method is shown in Figure F.




Finally, the mounting surface of the sensor and the surface to be measured must be tightly fixed, smooth in contact, and stable in rotation, and measurement errors due to acceleration and vibration must be avoided.

# DIMENSIONS

**Outline Dimensions**

| Top View | Side View |
|---|---|
| Side View | Unit: mm (inch) |

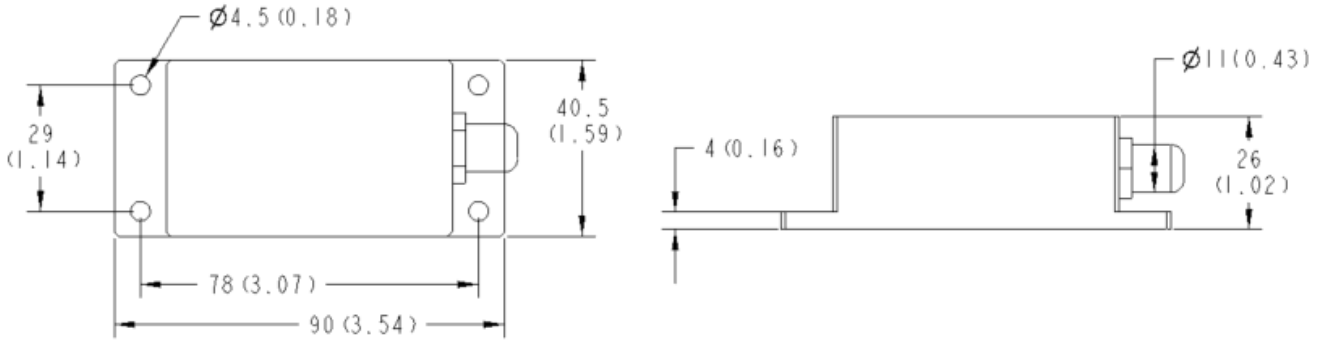



Figure 2. Outline Dimensions

**Board Dimensions**

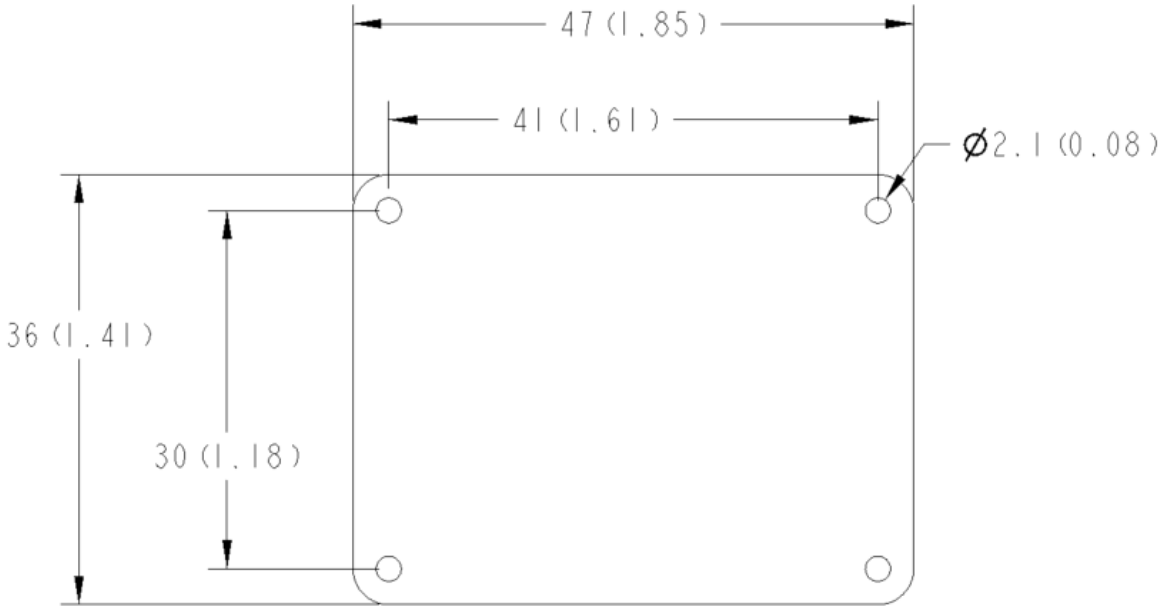



Figure 3. Board Dimensions

## MECHANICAL PROPERTIES

| | |
|---|---|
| Connector | Metal joint（cable 1.5m) |
| Protect level | IP67 |
| Shell material | Magnesium aluminum alloy anodizing |
| Installation | Four M4 screws |

## ORDER INFORMATION

| Product model | Communication mode | Package situation |
|---|---|---|
| STS-3624-R08-232 | RS232 | IP67 package/Metal joint |
| STS-3624-R08-TTL | TTL | IP67 package/Metal joint |