SINIT RS232 Current-type Tilt Switch

SINIT RS232 Current-type Tilt Switch User Manual

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SINIT

SINIT RS232 Current-type Tilt Switch

Specifications

- **Product Name:** SINIT RS232
- **Type:** IP68 Current-type Tilt Switch
- **Application**: AGV Truck, Platform Stability, Auto Safety System, 3D Virtual Reality, Industrial Control, Robot, Car Navigation, UAV, Truck-mounted Satellite Antenna Equipment

Product Usage Instructions

Connection Instructions

Connect the user's device using the following color-coded scheme:

Color	Definition	Function
Red	VCC	5-36V Power Input
Green	RX	Serial Data Input, TTL/232 Level
Yellow	TX	Serial Data Output, TTL/232 Level
Black	GND	Ground/Negative
White	OUTX	X-axis Analog Voltage Output Positive
Gray	OUTY	Y-axis Analog Voltage Output Positive
Purple	Relative Posture	Angle Zero Setting

Use Instructions

To use the product, follow these steps:

- Refer to the provided documents or download software and drivers from the official website.

- Watch the teaching video for detailed instructions.
- Use the SDK (sample code) and SDK Tutorial Documentation for secondary development projects.
- Understand the communication protocol for data exchange.

Set the Relative Attitude Angle
Follow the instructions provided in the manual to set the relative attitude angle of the sensor.

Current Output & Angle Calculation Formula
Refer to the manual for the formula to calculate the current output and angle based on sensor readings.

Angle Measurement Axial Display
Install the device with the sensor's mounting surface parallel to the measured target surface. It can be installed horizontally or vertically as shown in the diagram (single axis X, Y optional).

Placement Direction
Ensure proper placement direction of the sensor for accurate measurements and functionality.

Tutorial Link

Google Drive

Link to instructions DEMO: **WITMOTION Youtube Channel SINIT Playlist**

If you have technical problems or cannot find the information that you need in the provided documents, please contact our support team. Our engineering team is committed to providing the required support necessary to ensure that you are successful with the operation of our AHRS sensors.

Contact

Technical Support Contact Info

Application

- AGV Truck
- Platform Stability
- Auto Safety System
- 3D Virtual Reality
- Industrial Control
- Robot
- Car Navigation
- UAV
- Truck-mounted Satellite Antenna Equipment

Introduction

The MEMS inclinometer SINIT can directly output the inclination angle. The data can be viewed through the PC software or serial port tool.
SINIT is a small volume and low-cost dual-axis current output tilt sensor with an output current of 4-20mA. Built-in

high-precision tilt unit, low power consumption, it is a high-precision tilt switch. X-axis Y-axis two analog current outputs, angle range -90 degrees to +90 degrees. Real-time monitoring of data on PC Software.

- **Dual axis Inclination Measuring:** X-axis (-90 degree, 90 degree) Y-axis (-90 degree, 90 degree), Dual-axis Analog 4-20mA Current Output
- **Kalman Filtering:** Integrated Kalman Filtering Algorithm ensures high-stability of angle data output even in a highly dynamic environment
- 0.1 degree Precision, IP68 Waterproof Protection, Anti-vibration

Warning Statement

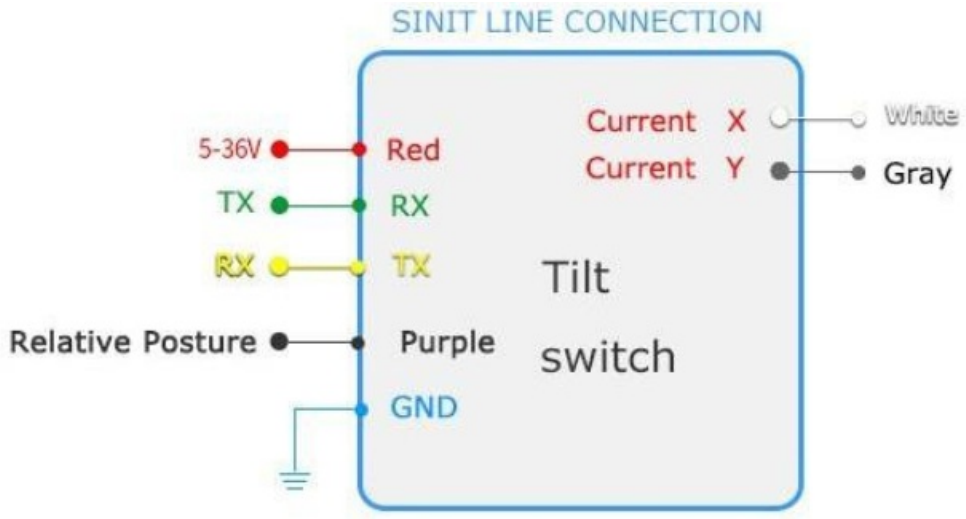
- Putting more than 36 Volts across the sensor wiring of the main power supply can lead to permanent damage to the sensor.
- VCC cannot connect with GND directly, otherwise it will lead to the burning of the circuit board.
- For proper instrument grounding: use WITMOTION with its original factory-made cable or accessories.
- For secondary developing project or integration: use WITMOTION with its compiled sample code.

IN Connection Instructions

Line Definition	RED	BLACK	GREEN	YELLOW	WHITE	GRAY	PURPLE
	1	2	3	4	5	6	7
	VCC	GND	TTL(RX) OR RS232 (R)	TTL(TX) OR RS232 (T)	OUT X	OUT Y	RELATIVE POSTURE

Color	Definition	Function
Red	VCC	5-36V Power Input
Green	RX	Serial Data Input, TTL/232 Level
Yellow	TX	Serial Data Output, TTL/232 Level
Black	GND	Ground/Negative
White	OUTX	X-axis Analog Voltage Output Positive
Gray	OUTY	Y-axis Analog Voltage Output Positive
Purple	Relative Posture	Angle Zero Setting

Connect User's Device



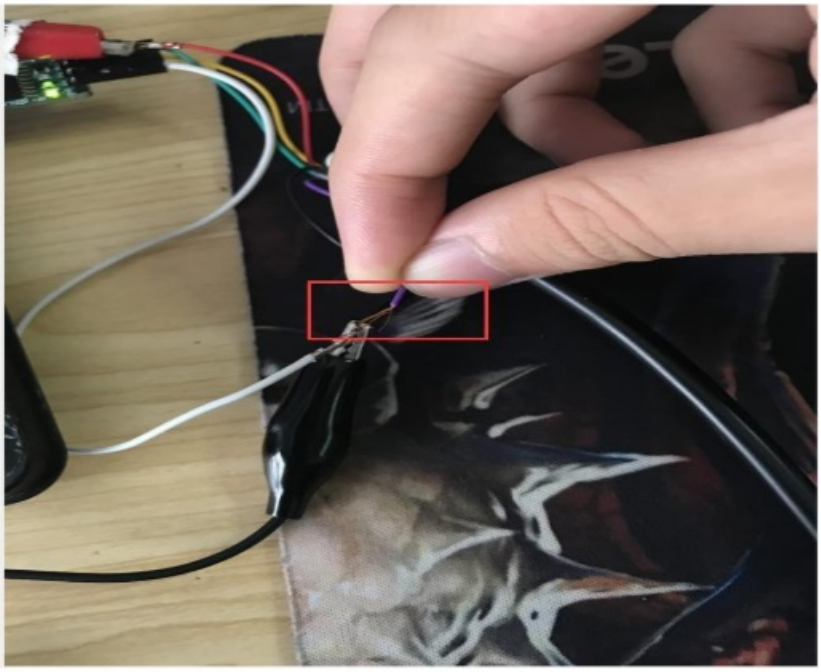
Use Instructions

Hit the hyperlink direct to the document or download center:

- **Software and driver download**
- **Common Software with detailed instructions**
- **Teaching Video**
- **SDK(sample code)**
- **SDK Tutorial Documentation**
- **Communication Protocol**

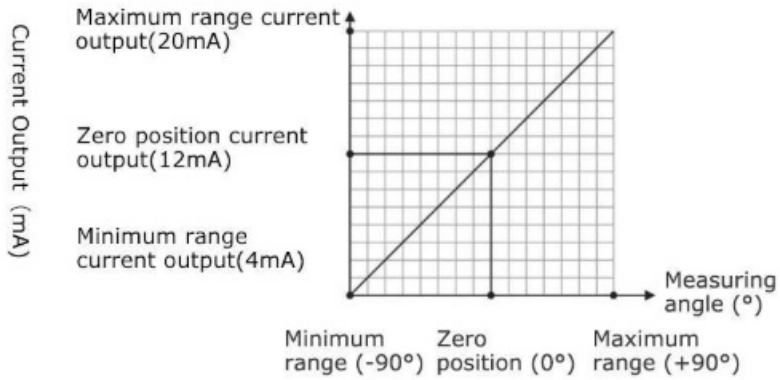
Set the Relative Attitude Angle

After the signal wire (purple) is grounded for two seconds, you can set the current attitude to a relative angle of 0°.



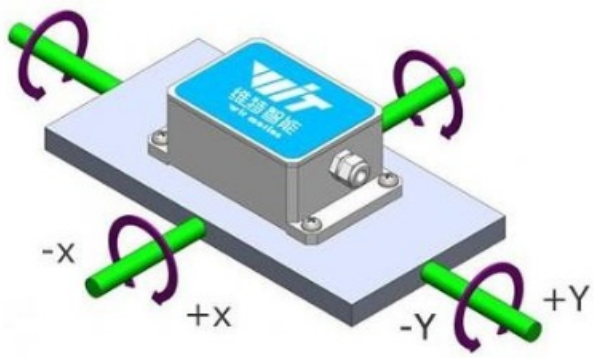
Current Output&Angle Calculation Formula

The SINIT is a standard current output of 4-20mA, which corresponds to the minimum range and maximum range of the angle measurement; the calculated angle is to obtain the corresponding angle value as long as the ratio. For example: SINIT-90 (4-20mA): means ±90° measurement range, 4-20mA current output.

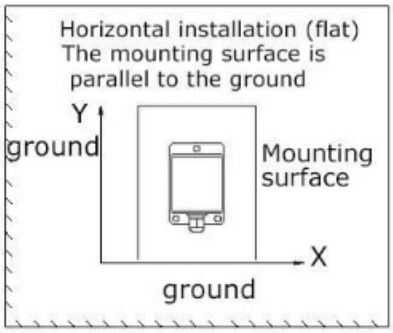


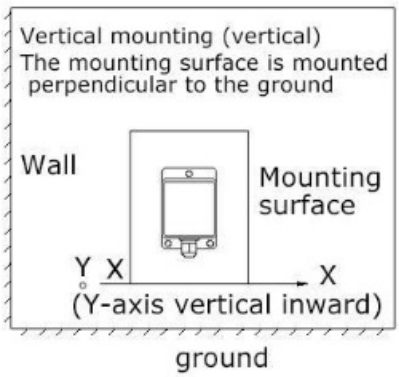
Angle Measurement Axial Display

Product Installation Direction:
The installation should keep the sensor's mounting surface parallel to the measured target surface. The device can be installed horizontally and vertically, please refer to the following diagram (single axis X, Y optional).



Placement Direction

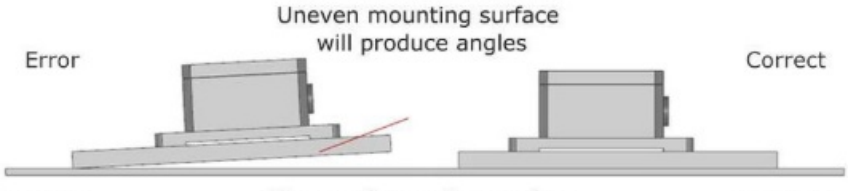


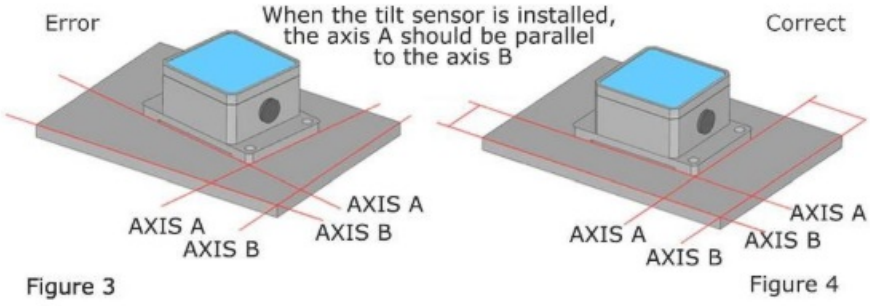


Installation Precautions

Precautions for product installation
Please install the inclination sensor correctly. Incorrect installation will cause measurement errors. Pay special attention to the surface and the two lines.

1. The mounting surface of the sensor and the surface to be measured must be tightly fixed, flat and stable. If the mounting surface is uneven, it will easily cause the angle error of the sensor, as shown in Figure 1, Figure 2.
2. The axis of the sensor and the axis to be measured must be parallel, and the two axes should not have an angle as much as possible, see Figure 3, Figure 4





FAQ

- **Q: What should I do if I encounter technical problems?**
- A: If you have technical issues, please contact our support team at **support@wit-motion.com** for assistance.

Documents / Resources

	**SINIT RS232 Current-type Tilt Switch** [pdf] User Manual RS232 Current-type Tilt Switch, RS232, Current-type Tilt Switch, Tilt Switch, Switch

References

- ____
- SDK | WITMOTION SDK
- User Manual