SW520D Tilt Sensor Module

Description:

ADIY TILT SENSOR MODULE is a device used for knowing the planar movement. Standalone tilt sensors sense tilt angle or movement. Tilt sensors can be implemented using mercury and roller ball technology, and can be mounted using mechanical threading, magnets, or adhesives, depending on what type of surface they are being mounted to.

The type SW-520D is a commonly available roller-ball type tilt sensor consists of two conductive elements (poles) and a conductive free mass (rolling ball), encapsulated in the same case. When the tilt sensor is oriented so that that end is downwards, the mass rolls onto the poles and shorts them, acting as a switch stroke. Microcontroller-compatible tilt sensor modules based on SW-520D are also available at affordable costs.

Features:

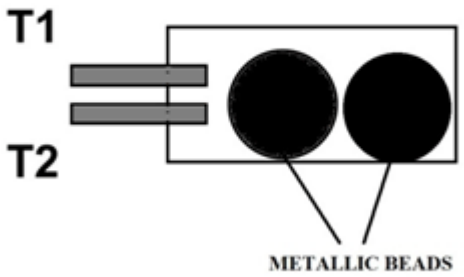
- Small size, simple to use and easy installation
- Digital output and Analog Output
- Long lifeline
- LED indication when the switch is on
- Can work on low voltage
- Easy interface with UNO and other controllers

Specifications:

- Supply voltage: 3.3 V to 5V
- Output can directly connected to controller
- Maximum output current : 15mA
- Can work on low voltages
- Maximum operating temperature: 0°C to + 80°C

How SW-520D sensor works:

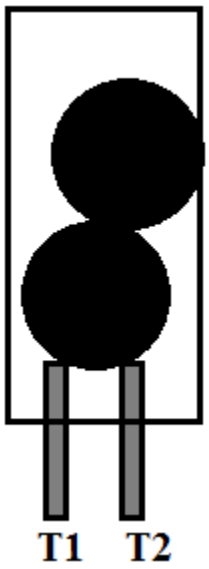
Before understanding how to use the module let us first understand the **working of SW-520D tilt switch.** For that consider the internal working of this tilt switch.



As shown in figure inside SW-520D tilt sensor all we have is two metallic beads. And the output terminals are projected to the inside. When the tilt switch lies horizontally on the plane, the two metallic balls rest on the floor as shown in figure. Under this situation there will no contact between terminals T1 and T2. So T1 and T2 will be open.

Now when the tilt sensor changed position from horizontal to vertical, we have something like this.

When the tilt switch is moved vertical because of gravity, the metallic balls come to rest on the projected terminals. Because the ball is metallic, when they rest on terminals an electrical contact is formed between two terminals. So in this position T1 and T2 are short circuited.



When the tilt switch is moved to horizontal position again, ball leaves the contact to rest on floor as before. With that T1 and T2 contact breaks making them open circuit.

So **SW-520D** output terminals open circuit when the body lies horizontal and is short circuit when body is vertical. Hence using this tilt switch we can detect which plane the body is lying.

Application:

- Security systems.
- Digital cameras
- Toys
- Motors
- Robotic arms
- Vending machines.
- Measuring instruments.
- Hobby projects.