

## Tilt Sensor - AT407

SEN-10289 ROHS ✓

### DESCRIPTION

### DOCUMENTS

This AT407 basic tilt switch can easily be used to detect orientation. Inside the can is a ball that make contact with the pins when the case is upright. Tilt the case over and the balls don't touch, thus not making a connection.

There are numerous uses for these basic sensors, but keep in mind you might need to use some **debouncing code**, as the sensor isn't immune to small vibrations and such.



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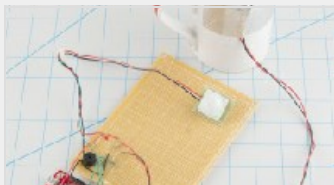


## Tilt Sensor - AT407 Product Help and Resources

### TUTORIALS

### VIDEOS

### SKILLS NEEDED



### RedBoard Santa Trap

DECEMBER 25, 2014

A fun holiday project to try for anyone looking to catch Santa on Christmas!

COMMENTS 20

REVIEWS 0


## Customer Comments


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stevenvh17 / about 3 years ago \* / ★ 1

Does anyone know how this compares to the SignalQuest SQ-SEN-390 or SQ-SEN-6xx tilt sensors, both performance-wise and price-wise? The SignalQuest parts seem hard to get by...

 **Member #517773** / about 3 years ago / ★ 1  
Can anyone tell me if they use resistors with these?

 **Member #380380** / about 4 years ago / ★ 1  
Anybody got an Eagle footprint for this?

 **Member #447032** / about 5 years ago / ★ 1

We ordered these sensors as they appeared to be a good replacement for our old tilt sensor in our RF mailbox transmitter that lets us know when someone has opened our mail box door as seen by the email "PLEASE BE ADVISED THAT THE MAILBOX HAS BEEN OPENED - PLEASE CHECK IT ! 6/19/2013 17:29:29 - 'MAILBOX IS OPENING I7' was executed: MAILBOX STATUS I SEVEN Sensor ON"

These devices were shipped very quickly and they are fairly priced!


Keep up the good job! Duane - retired Space Systems Engineer in Tampa

 **Member #529131** / about 4 years ago / ★ 1

Hi Duane, I am working on building an RF mailbox transmitter for a college course in Mechatronics and I am just getting started with my parts list...I was wondering if you could pass on any advice for parts...my plan was to use a PICAXE micro controller, a sensor to tell if mailbox had been opened and a sensor to tell if the mailbox flag was up (to prevent false positives), 315 mHz transmitter in the mailbox, and a 315 mHz receiver that could be placed on a table in the house with LED lights and maybe a speaker... If you wouldn't mind contacting me my email is andrew dot fingerson at gmail dot com. Thank you, Andrew in Northern California.


 **Member #264677** / about 6 years ago / ★ 1

What's the temperature range for these? I want to use this to make a sensor for the garage door.

 **aws** / about 6 years ago / ★ 1

"Isn't immune to small vibrations" is an understatement; its so sensitive it barely works at all. More disturbingly it occasionally fails to close the switch at all in the upright position, seems that the mechanism can fall into a position such that the ball is resting on the pins but doesn't close the contact. I suspect the ball isn't sufficiently weighted and/or smooth to reliably create an electrical circuit with just the force of gravity.


Might work better as a vibration sensor, or use two in parallel to reduce the probability that they will both fail at the same time?

 **BiOzZ420** / about 4 years ago / ★ 1


i miss old mercury based ones! ... just dont bust them out and eat them or toss them in the trash ...

 **Member #303620** / about 5 years ago / ★ 1

I also agree. I cannot get mine to close at all.

 **Octovert** / about 6 years ago / ★ 1

Have to agree. The thing twitches like mad, and I can't get it to be consistently on or off, even if it's fully inverted. Debouncing code doesn't get reliable results either.

 **bennard** / about 7 years ago / ★ 1

1. has anyone used one of these as a simple vibration sensor? i need a CHEAP and small sensor to detect movement.
2. will the internal balls and pins get broken or damaged if this is installed in a dynamic environment? Im talking in dancing shoes...  
I am making adult light up shoes using an attiny and some leds. My gf insists that there has to be a switch of some kind in the circuit and cant be always on. thx.

 **EvanAlmighty** / about 3 years ago / ★ 1

They have nice vibration sensors on adafruit for very cheap. ~2 dollars each. **vibration sensor**

 **Member #211607** / about 7 years ago / ★ 1

Why don't you just use a piezo element, There small thin and cheap. It sounds like the perfect solution for your problem.

 **NotDavid4JustDavid** / about 7 years ago / ★ 1

I checked the source company's data sheets and products. This switch has only a 30 degress sensitivity. (Which means you may have to tilt the canister up to 30 degrees off to have it trigger.) However the same company also makes mercury switches with a 5 degree sensitivity. Would it be possible to get these available too?

 **Nate** / about 7 years ago / ★ 1

Mercury makes me nervous. And your goal is for better resolution? We like to point people towards a MEMS solution instead. The ADXL335 or ADXL345 requires a micro, but it may be a better fit than a mercury switch.



**rwizard** / about 7 years ago \* / ★ 5

tfic

Nate,

Don't let mercury make you too nervous. As a kid I had a jar of mercury which I played with all the time.

Mercury has been used (in modern times) for medical purposes such as ointments (Calomel), antiseptics (mercurochrome), and dental amalgams. I'm not saying you should take the potential downsides of mercury exposure lightly, but it isn't the monster the hysterics of the world want you to believe, either.

Like most things in life, it requires care and the application of common sense, but I do not think its use in a tilt switch should make you worry. Until recent years most home thermostats had a glass encapsulated mercury tilt switch in them.

What you should really worry about is excessive exposure to di-hydrogen monoxide. It is widely used, a common cause of significant problems in the environment, and has killed far more people than mercury ever will. Hopefully, the threat will eventually be addressed, and this dangerous "universal solvent" will be banned. I could not find a number for mercury, but uncontrolled exposure to di-hydrogen monoxide is reported to cause 388,000 deaths annually according to the WHO. I can't imagine mercury is coming anywhere near that toll.



**Member #423675** / about 5 years ago / ★ 2

Upvote for dihydrogen monoxide!!!



**Member #465906** / about 5 years ago / ★ 1

I agree. As a young lab assistant back in the 1970s, I regularly used my fingers to smear mercury on the copper tails of standard resistors, (class S) to ensure good contact when they were placed in the mercury filled connecting cups. It was the norm in those days, I'm 66 now and as far as I know, do not have mercury poisoning. In adjacent labs you could enjoy such things as the fumes from hot CK wax, perchloroethylene, Propan-2-ol, and trichloroethylene. When using the latter, (Trico?) someone working at the next bench might casually warn you not to smoke, as inhaling the fumes through the cigarette generated Phosgene gas! Regards



**Toni\_K** / about 5 years ago / ★ 1

Geez...labs must have been so much more fun back in the day.



**Omaga Sohe** / about 6 years ago / ★ 1

Okay, i laughted. and laughted. I remeber this from a pamphlet i got in 7th grade. Makes me happy.

 **START**  
SOMETHING.



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