Analog Thumbstick Slew sensor upgrade kit for Thrustmaster Warthog Throttle

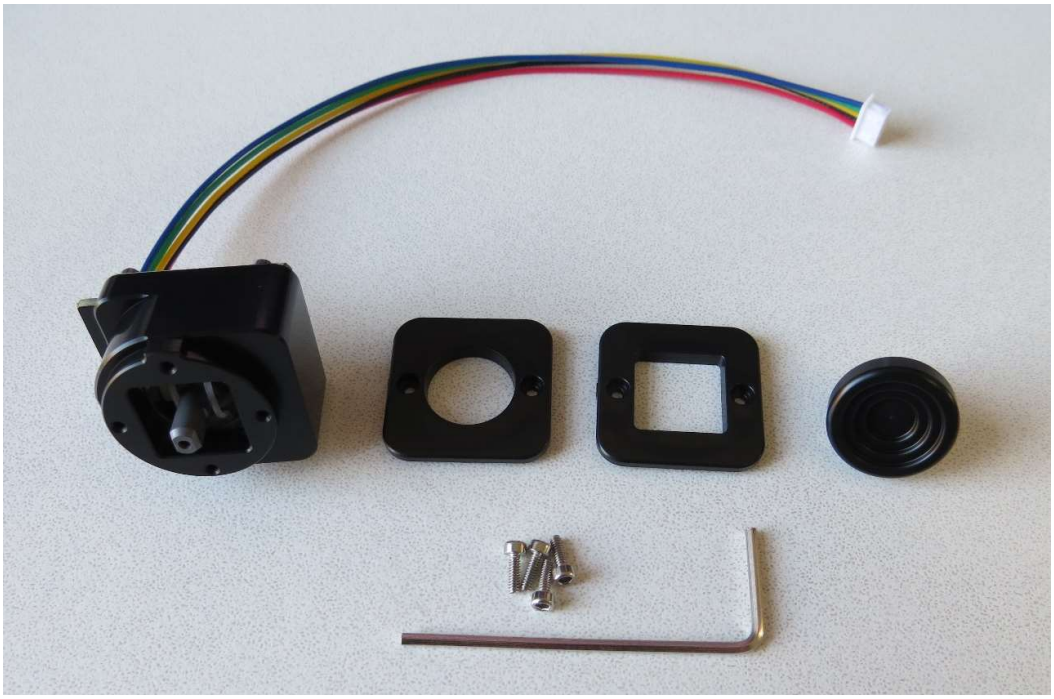
Installation Instructions

Last updated – February 2023

Delta Sim Electronics

Parts:

You will receive these parts with your kit:



1. Sensor unit – contains the ALPS sensor and all circuitry, fits into the throttle housing

2. Circular front plate – Holds the sensor in position by clamping it into the throttle housing. Circular gate pattern

3. Square front plate – Holds the sensor in position by clamping it into the throttle housing. Square gate pattern

4. Thumbstick hat - pushes onto the sensor, moved by the user

5. Spare screws – Spare screws for screwing on the front plate, in case you lose any (M1.6 5mm)

6. 1.5mm Hex key – for installing screws into the sensor

Firmware Update:

If you have an older Warthog throttle (purchased before 2013 approximately), and you have never updated your firmware, you may need to do this before the upgrade will be properly detected.

The latest official Thrustmaster firmware version is 23, if your firmware update tool does not show this version then you may need to update your drivers before you can continue.

We have developed an optional, modified version of the original firmware.
This gives a smoother and more responsive slew axis, by increasing the axis update rate from approximately 10Hz to over 50Hz, to match the other throttle axes.

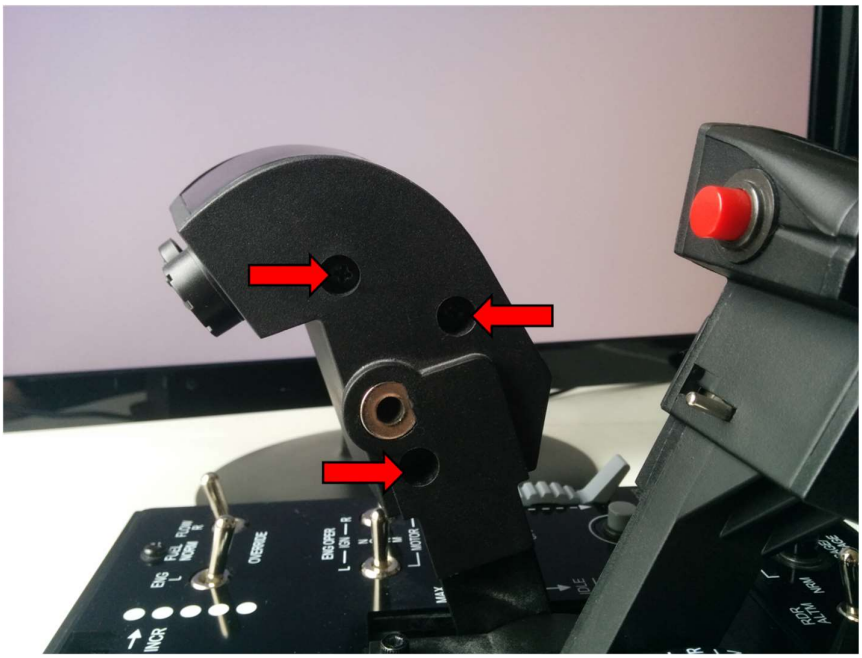
The new firmware version can be downloaded from the Install Instructions page on our website.
https://deltasimelectronics.com/pages/install-instructions

Please see the Thrustmaster website:
(https://ts.thrustmaster.com/download/accessories/pc/hotas/manual/HOTAS_Warthog/HWarthog_Firmware_Update.pdf) for more instructions on how to upgrade the firmware. Please contact us if you have any issues.

When updating from a version older then 23, please make sure the old sensor is connected to the throttle. Having the new sensor connected can cause issue while updating from some older versions.

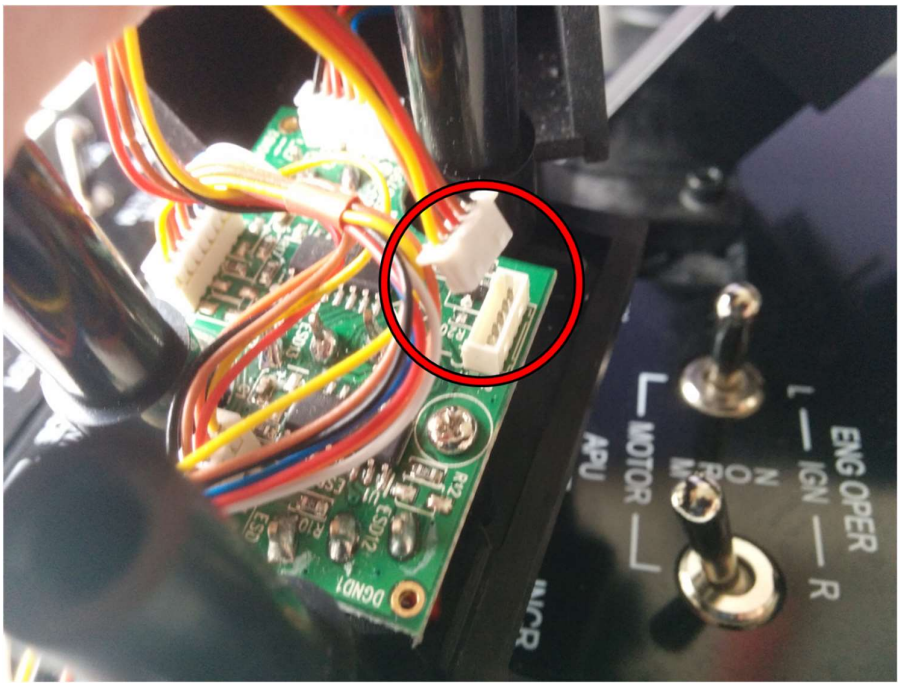
Old sensor Removal

The first step to fit the new sensor is the remove the 4 screws holding the throttle together:

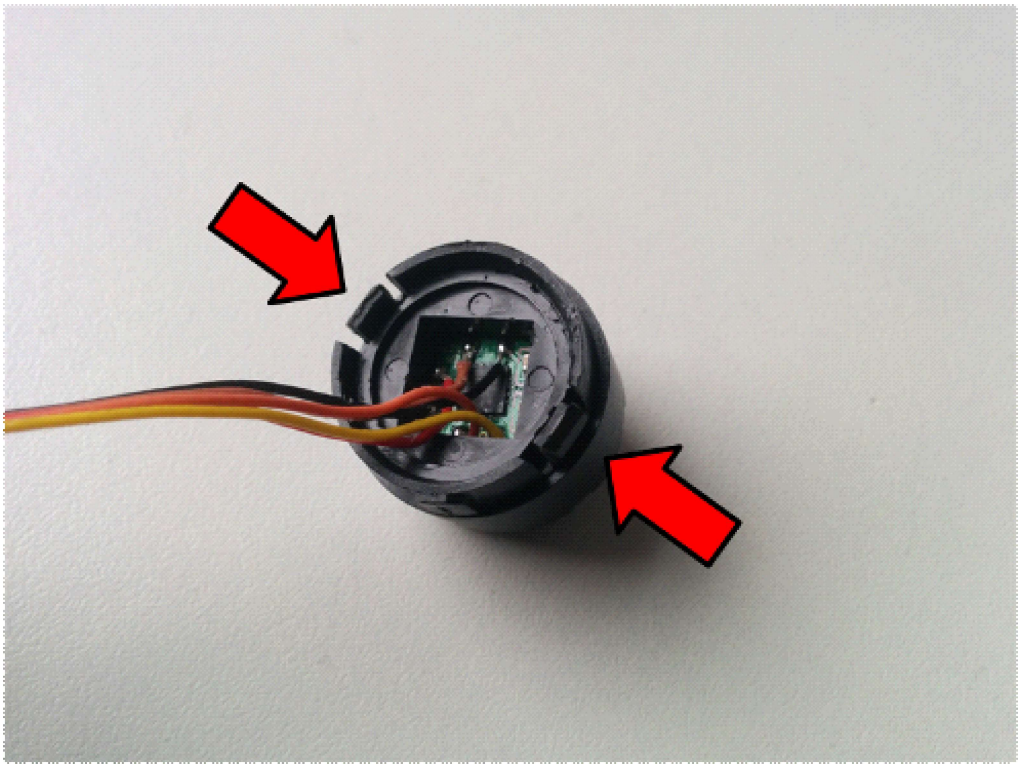


After all 4 screws are removed **carefully** separate the switch side of throttle, take care as wires are connected to both sides and they could become broken this is removed too far.

Once the side of the throttle is removed, carefully unplug the old sensor from the throttle PCB.



Next remove the old sensor from the throttle housing. To do this you will need to push the small plastic clips holding the sensor in place towards the centre of the sensor, as shown in the image below. I find pushing them with a finger in the best way to do this. **Do not force the sensor out**. It should come out easily once the clips have been moved out of the way.



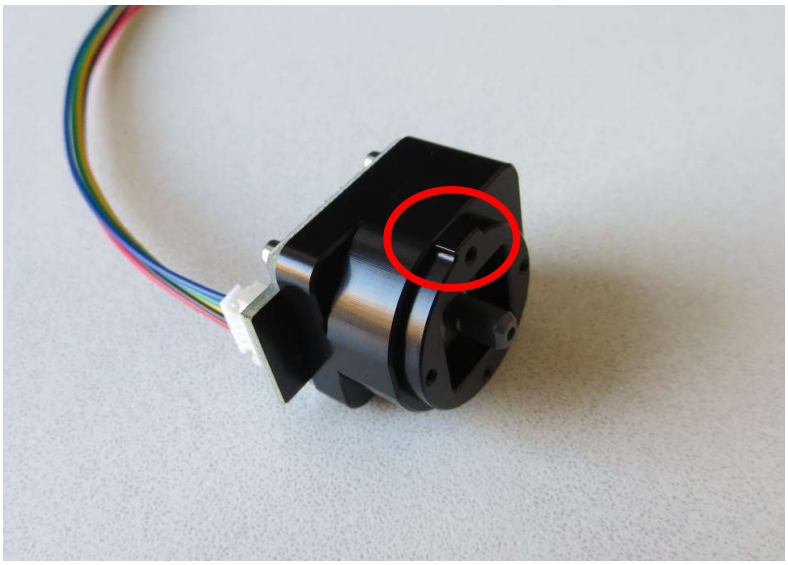
Please keep your old sensor somewhere safe. It may be useful for troubleshooting if you experience any issues in the future – or if you even need to return your throttle to the manufacturer.

New sensor Installation

Your new sensor will arrive partially assembled, you will need to remove the Thumbstick hat and unscrew the front plate in order to fit the sensor. To do this carefully pull the hat forward away from the sensor, it is a snug push fit so may require a small amount of force to remove. Do not apply any excessive twisting force onto the hat, it is not screwed on.

To install the new sensor, align the key on the sensor with the small keyway at the bottom of the hole in the throttle, see the picture below for reference.

Carefully install the senor from the inside of the throttle. It should **not** be a tight fit into the throttle housing. If it does not go in easily, realign the sensor and try again.



Once the sensor is in place, make sure it if fully installed by checking the front face of the sensor is roughly inline with the recessed ring on the front of the throttle housing, as shown below.

Next install your preferred front plate by screwing in the two screws with the hex key provided. Threads are tapped in the sensor housing so the screw will go in easily. Be carefully not to cross thread the screws or over tighten, as this could damage the screw threads.

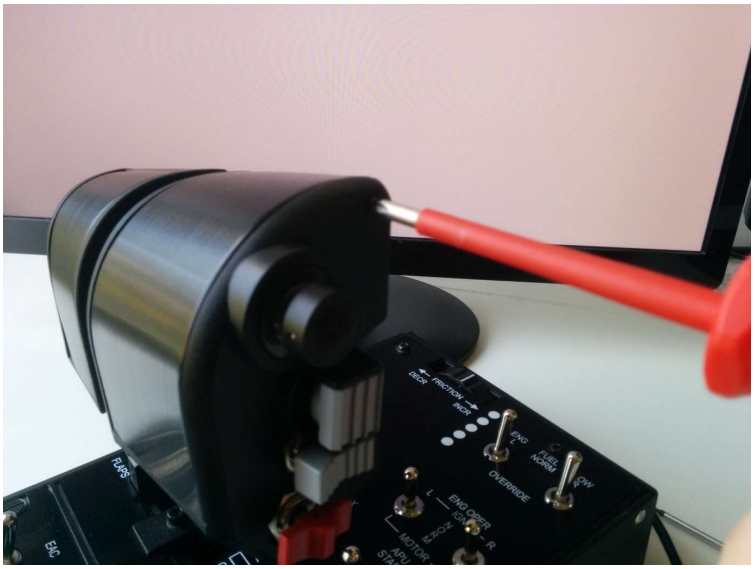
Next install the sensor hat. The hat has two flats to fit the two flats on the sensor shaft, make sure these are aligned when installing it. It will be a snug friction fit on the sensor so will require some force.

Finally, connect the sensor cable to the throttle PCB. Please ensure the connector is the correct way around when installed, like the image below. **Note that colours of the cable on your unit may be different from the image below - as long as the connector is the correct way around it will work fine.**

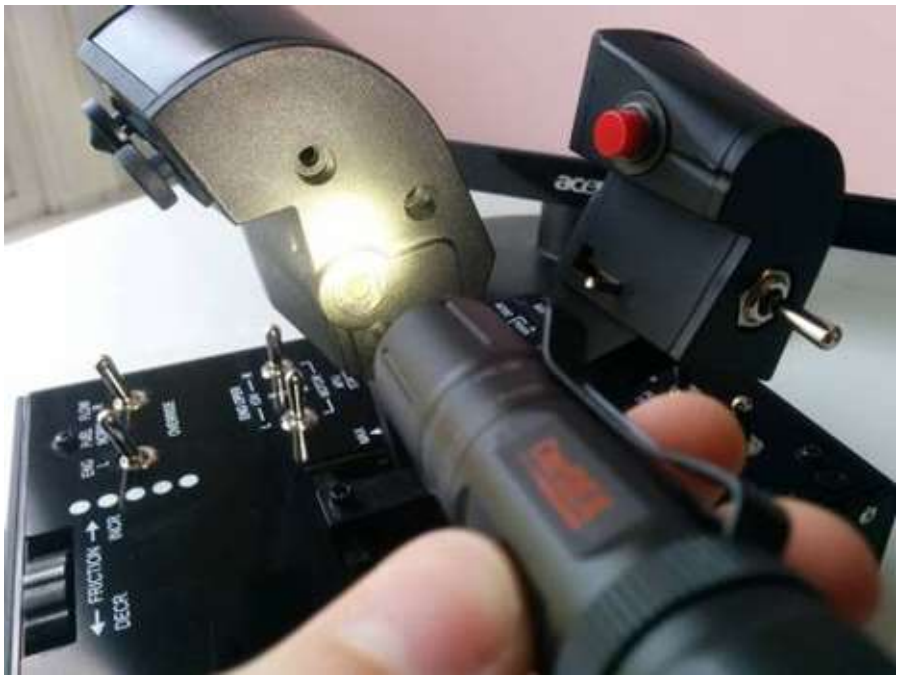
Now you are ready to reassemble the throttle, carefully reorganise the cables back into the throttle. **Take care with the 3 plastic pillars for the screws, they sometimes fall off when putting the throttle back together and are all required to be in place the protect the cables from the screws.**

Also take care that all wires are out of the ways of the plastic posts and screw holes and none will get crushed when you reassemble the throttle, as this could cause damage.

Once the throttle halves are back together, install the small screw into the switch side.



After this is done, I recommend using a bright light to look into the back 3 screw holes to double check all 3 plastic pillars are in place and no wires will be crushed when the screws are installed, if you can see any wires or missing pillars, then you will need to take the throttle apart again to reorganise everything.

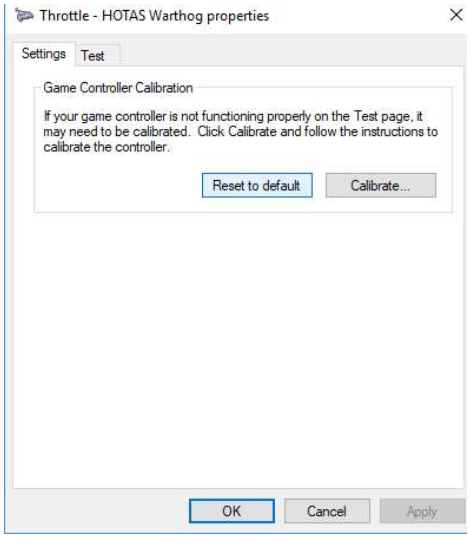


If everything is good, install the last 3 screws.

Calibration

The first step in calibration is to clear any existing Windows calibration.

To do this connect the throttle to your PC and the open the Windows game controller menu:
Set up USB game controller >> Throttle HOTAS Warthog >> Settings >> Reset to Default >> Apply >>OK



If you cannot press the Apply button, then there was no existing calibration and you are free to move onto the next step.

Next you will need to run the Thrustmaster throttle calibration utility. It can be downloaded for the Install instruction page on our website. https://deltasimelectronics.com/pages/install-instructions

DO NOT USE WINDOWS CALIBRATION.

The program comes with a configuration text file “A10_calibration.txt”, this is read by the calibration program to set a number for parameters. It must be in the same directory as the program when the calibration is run.

For best performance we have modified the A10_calibration.txt configuration file to reduce the dead zone on the slew sensor axes, change:

Old:

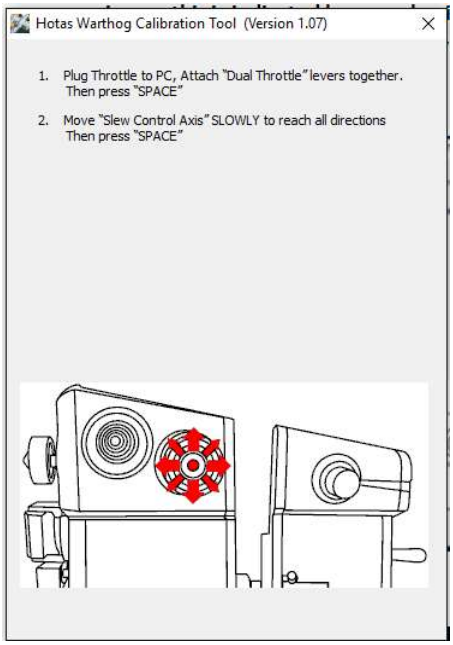
```
Standard_DZ_SX = 0x10;   // 20
Standard_DZ_SY = 0x10;   // 21
```

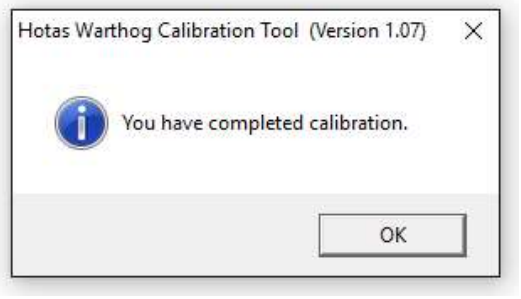
New:

```
Standard_DZ_SX = 0x5;    // 20
Standard_DZ_SY = 0x5;    // 21
```

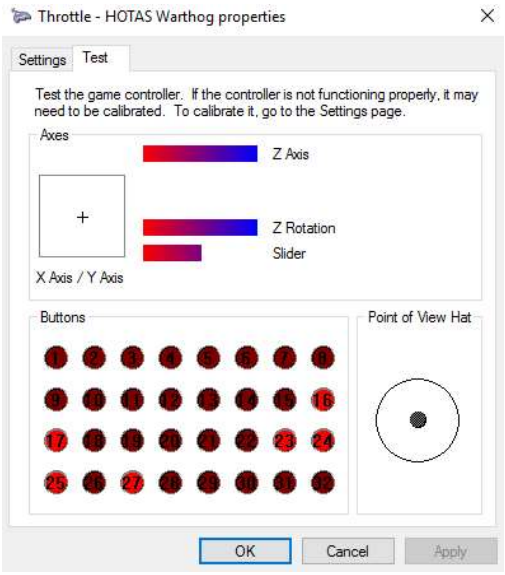
Note: This has already been done in the configuration files we provide, but the values are different compared to our other kits – please double check to make sure you have downloaded the correct one.

Now run the Throttle Warthog Calibration utility, and follow the on screen instructions:





Once the calibration is completed, verify everything is working properly in the Windows game controller menu, or in game.



We recommend the following axis profile for HOTAS slew X/Y in DCS, however it is of course up to personal preference. Similar profiles can be set in most other games.