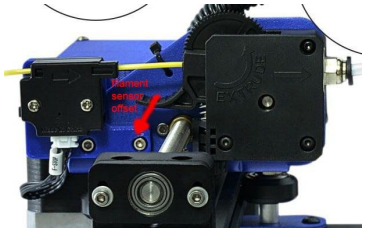
Titan Extruder Upgrade Guide.

1. Obviously you must first acquire a Titan Extruder.


2. Remove your filament runout sensor, making sure to keep the two screws. You'll need a filament sensor offset. I made one you can download here...

https://www.thingiverse.com/thing:4603367

This is what the XY-2 Pro looks like with the Titan Extruder when it comes from the factory preinstalled.



3. Remove your old stock extruder...First remove the two smaller bolts (you are going to need them in a minute).

Then remove the Bowden Tube...press down on the plastic lip and pull the tube out.

4. Hold the stepper motor or it will fall once you remove the last bolt. Then remove the idler arm, be sure not to lose the small spring in case you want to reuse this extruder later. Then unplug it the motor.

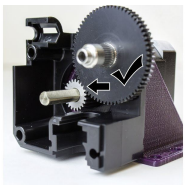
5. On the stepper motor the brass extruder gear will have two small grub-screws to remove then pull off the brass gear.

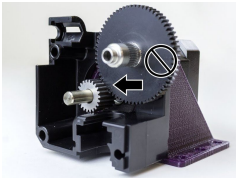
6. This step will involve building the Titan Extruder. I'm going to refer you to this page, it'll tell you how to set it up properly....better than I could.

The site listed below shows a build for a direct drive system...the only difference would be instead of connecting your Titan Extruder directly to your Hotend...you just connect your Bowden tube input coupler.

https://e3d-online.dozuki.com/Guide/1.75mm+Direct+Titan+Assembly/19

7. Once you have got the Titan built you can lock it all into place with the provided bolts. Be sure to align the Main gear with the Hob gear as stated on the build page from **step 6**.





8. Using the two small bolts you took from the stock extruder in **step 3**...attach the filament sensor offset, you printed from **step 2**. Then with the two screws that held your filament sensor originally, reuse them to re-attach your sensor to the filament offset.

9. Make sure your filament runout sensor output is nicely lined up with your Titan filament input. Tighten everything down and make sure it is all square and true.

10. Boot up your printer and use the "**savesettings**" gcode in the files section of this group, put it on a SD card, save your current configuration. Just select the savesettings file and hit print....**wait about 15-20 seconds then hit stop**. There should now be a file called currentconfig on your SD card.

11. Open this file on your computer using **Notepad++** or a similar program.

12. In your configuration file these are the lines you have to change…

M8005 I1;E电机方向 *change to* **M8005 I-1;E电机方向** *(this will reverse the direction of your E-motor)*

M8011 S0.005399;e每步mm *change to* **M8011 S0.0013085;e每步mm** *(this changes your baseline E-steps to fit the Titan profile)*

M8026 I260.000000;Z最大行程 *change to* **M8026 I240.000000;Z最大行程** *(this changes your Z height...the Titan is taller than the stock extruder and you lose about 2cm of height).*

After you've changed these parameters in your configuration file, save it to your SD card. You must change your Z-Height in your slicer program as well, or there will be problems.

13. Load your SD card into your printer, boot it up and print the '**currentconfig**' file you just changed. Once it finishes...I would suggest rebooting again just to be safe.

14. On your Titan extruder you will have to set the tension on your idler arm...there is a small knob on the side to do this with. I'm going to let you use your own judgement as to the tension to set. You want it to be gripping the filament, not crushing it.

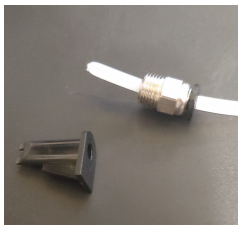
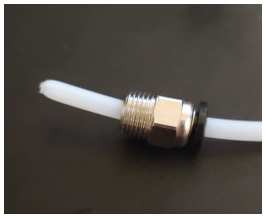
15. Now you will have to calculate your **E-steps**. The number you put into **M8011** in **step 12** is only a baseline taken from the stock Configuration file for a XY-2 Pro with a Titan preinstalled from the factory.

You will have to calculate and calibrate the Titan to your own personal printer. There are many guides online on how to calibrate your extruder, so I'm not going to go over it... here are a couple of examples...

https://www.matterhackers.com/articles/how-to-calibrate-your-extruder

https://www.instructables.com/id/How-to-calibrate-the-Extruder-on-your-3d-Printer/

15. Once your extruder is calibrated you should be good to go. Reattach your Bowden tube*.

* Something I noticed is that for the filament to pass through easily you have to extend your Bowen tube into the coupler until it stops...this will mean it's flush to the throat piece of the extruder (see pics for details). Before you start printing make sure your Bowden tube doesn't bind at all, due to the slight amount pushed into the coupler to the throat piece, thereby shortening your tube length.