# RAISE3D

# Filament Run-Out Sensor
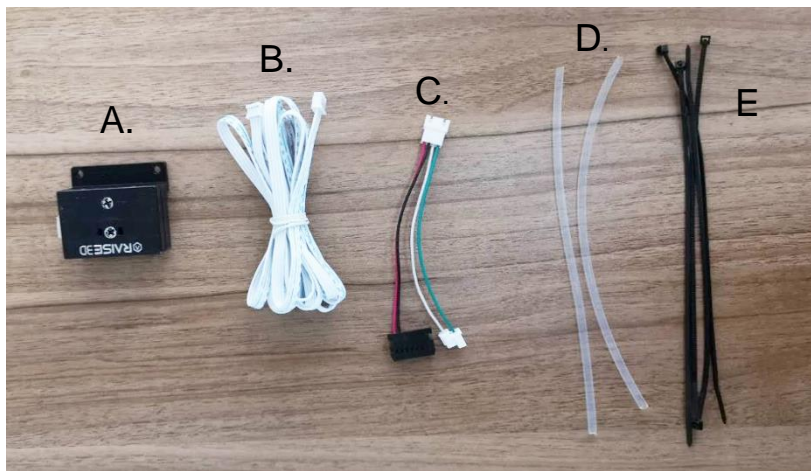
## Installation Guide - N1

## Contents

List of contents:

A. Filament Run-out Sensor.

B. Filament Run-out Sensor Cable.

C. Adapter.

D. Bowden Tube with 4mm-OD *2.

E. Cable Tie *4.





## STEP 1: Disconnect Power

Turn power switch to the "0" or "Off" state. Once the printer has fully shut down, unplug the power cable.

## STEP 2: Replace the Bowden Tube

2.1 If the original Bowden Tubes on your printer are with **4mm-OD**:

● Remove the original Bowden tubes completely and replace them with the included Bowden tubes from the Run-Out Kit (D). To release the tubes, press and hold the blue ring on the coupling.
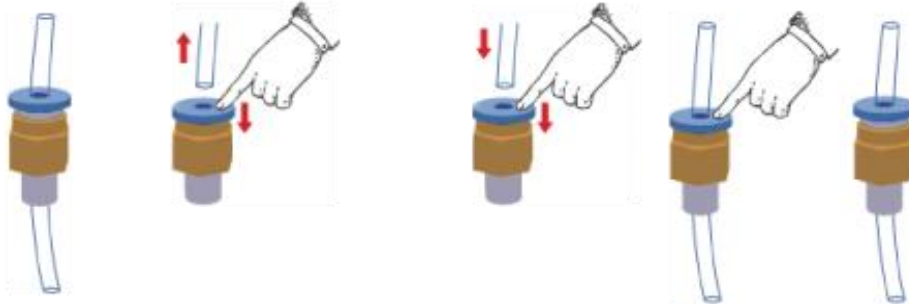


2.1 If the original Bowden Tubes on your printer are with **6mm-OD**:

● keep the origin tubes and directly insert the new 4mm–OD tubes to pass through.
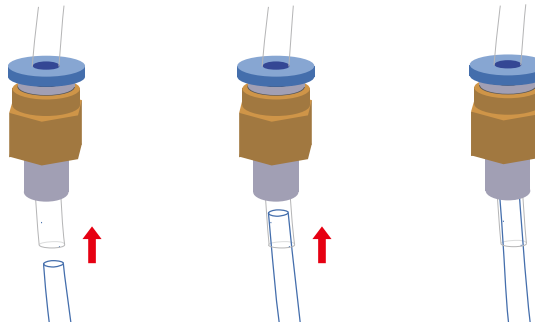


## STEP 3: Assemble the Filament Run-Out Sensor



Connect the white Filament Run-Out Sensor cable (B) to the Filament Run-Out Sensor (A). Remove the tape covering.

## STEP 4: Install the Filament Run-Out Sensor

4.1 Attach the assembled Filament Run-Out Sensor
to the Bowden tubes underneath the couplings.

   *It is recommended to mount a spool of filament
   prior to installation. This will ensure that
   there is no interference between the
   spool and the Filament Run-Out Sensor.*
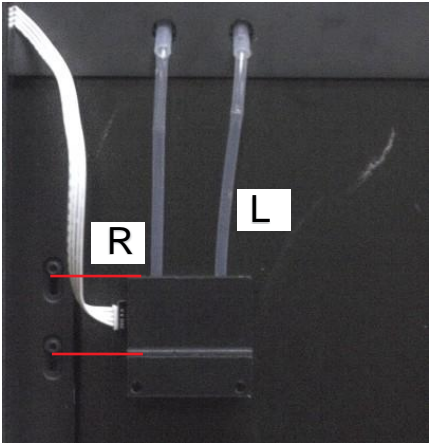


4.2 Move the sensor up until it is parallel with the
motor mounting screws.
Press and hold the blue buttons on the couplings
to release the tubes and adjust the position of
the filament out sensor.

4.2 Pay attention to the filament feeding order for
different nozzles in case false alarm.
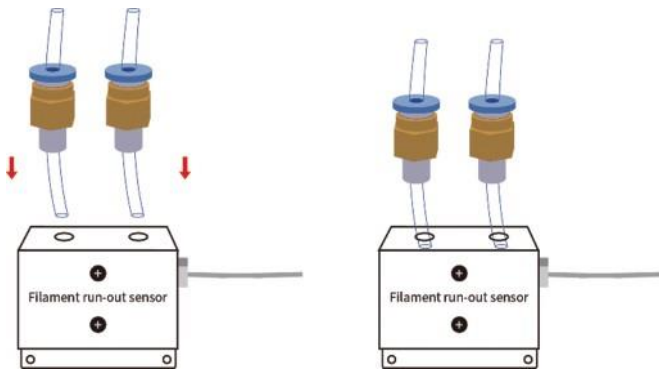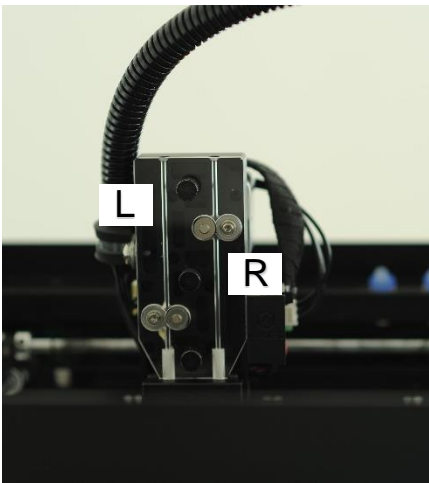




## STEP 5: Remove the Wire Path Covering

Locate the plastic wire path covering. Remove the
covering by pinching and pulling the cover away.

If your printer version has a metal covering, do not
attempt to remove it. Wires will be routed along the
outside of the machine.
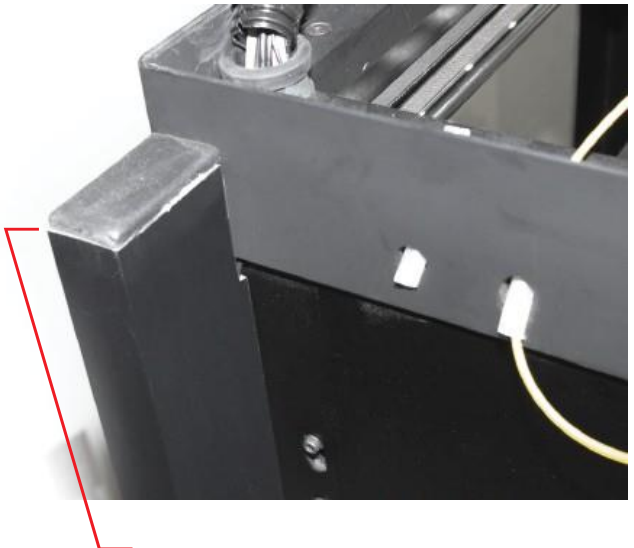
## STEP 6: Wire Routing

Feed the filament sensor cable through the frame and into the base of the printer through the wire path channel.

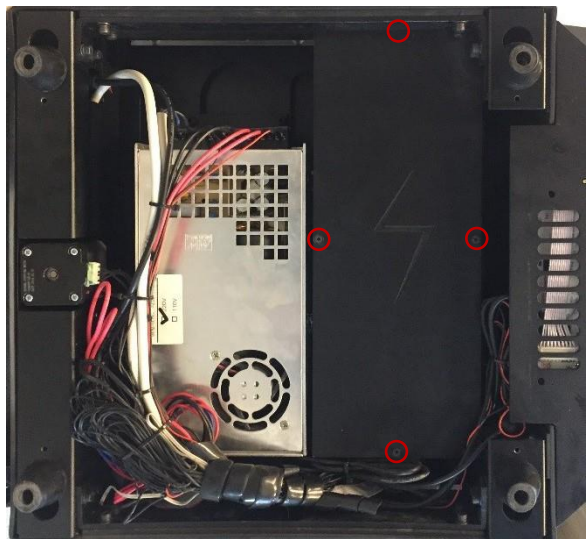If the wire cover is metal, run the cable outside the printer underneath the printer.

## STEP 7: Detach the Baseplate cover

Lie your printer on it' s left side (Your right when facing the door). And remove the 4 marked screws with a 4mm hex wrench.
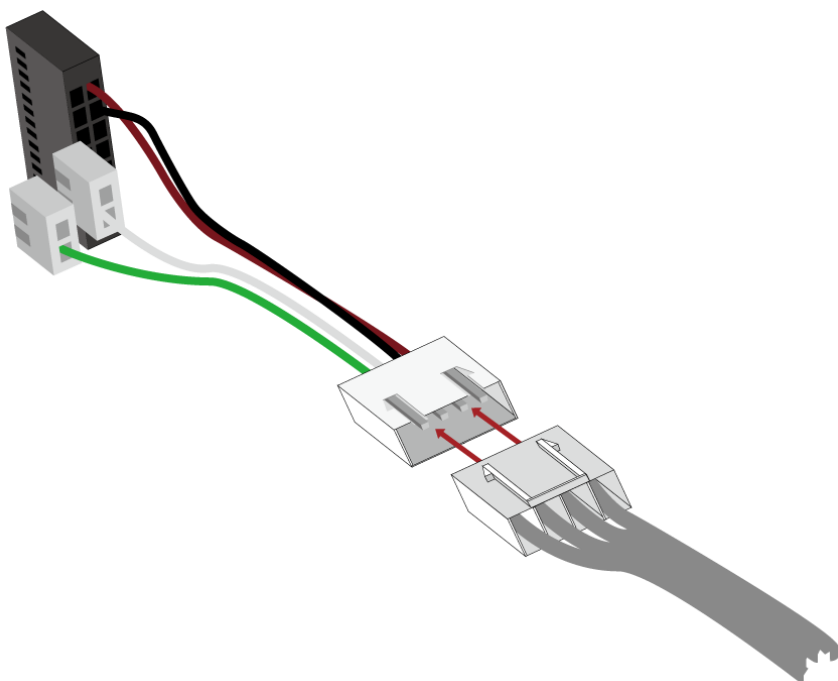
## STEP 8: Open the Electronics Cover

Unscrew the four 2mm hex screws to open the Motion Controller Box.

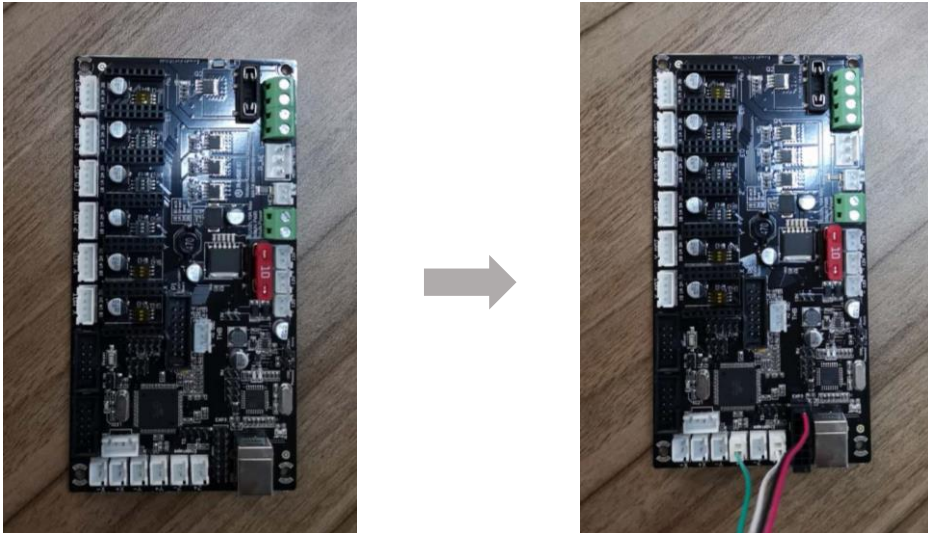Use the included adapter (C) to connect the Filament Run-Out Sensor to the motion controller board with the 4-pin end.

Attach the other three ends of the adapter onto the Motion Controller Board as shown in the following pictures:
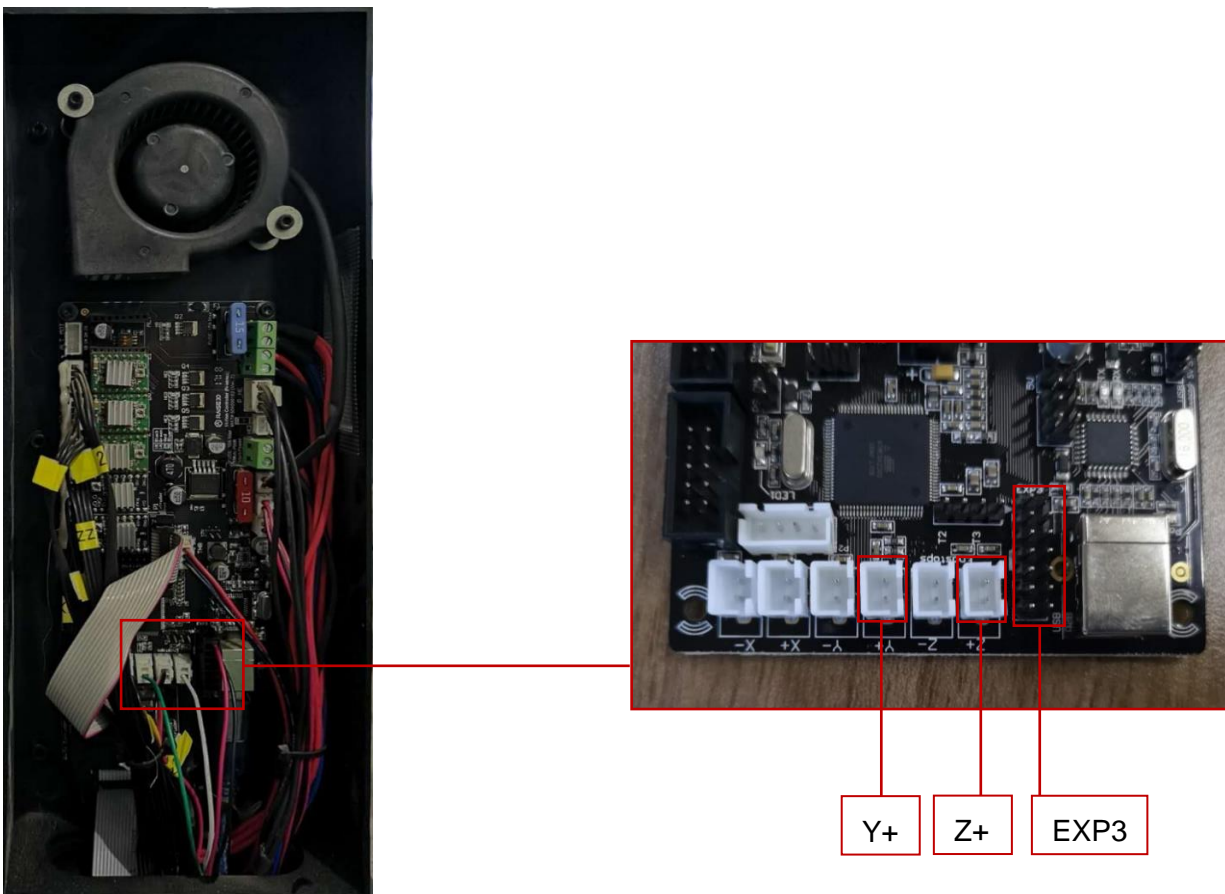
Red-black cable to EXP3 (slot on terminal face to right),

White Cable to Z+,

Green Cable to Y+.



Wiring complete:



Y+    Z+    EXP3

## STEP 9: Bundle Remaining Wires



(Optional) Tie the excess cabling in preparation for re-installing the base plate.

## STEP 10: Attach all removed parts

Re-attach the components that have been removed.
This includes:

- Motion Controller Box covering (Step 8)
- Base Plate Covering (Step 7)
- Wire Path Covering (Step 5)

## STEP 11: Install New Firmware

Please download Motion Board Firmware with FRS version from
https://www.raise3d.com/pages/filament-run-out-sensor-installation-instruction and Version 0.9.7
Touchscreen Firmware from https://www.raise3d.com/pages/download.
Save the two firmwares in USB storage. Attach the USB storage onto the screen and reboot the printer.
Continue to the "Motion Controller Firmware Update" for instructions on how to update to the motion board firmware.

# Filament Run-Out Sensor

Installation Guide - N2/N2 Plus

## Contents

List of contents:

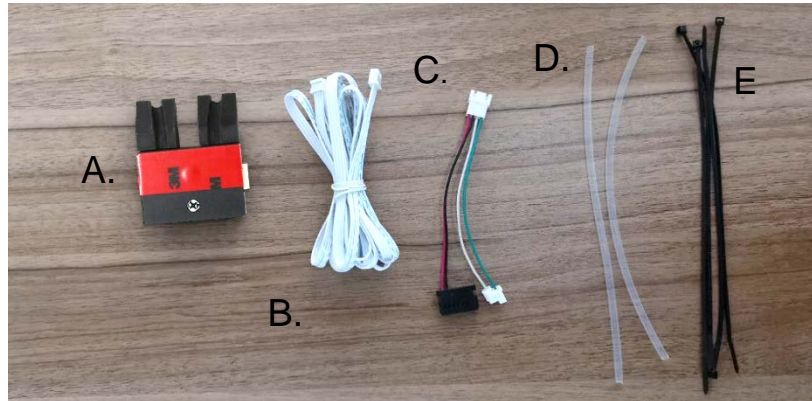A. Filament Run-out Sensor.                    B. Filament Run-out Sensor Cable.

C. Adapter.                                      D. Bowden Tube with 4mm-OD *2.

E. Cable Tie *4.



### STEP 1: Disconnect Power

Turn power switch to the "0" or "Off" state. Once the printer has fully shut down, unplug the power cable.
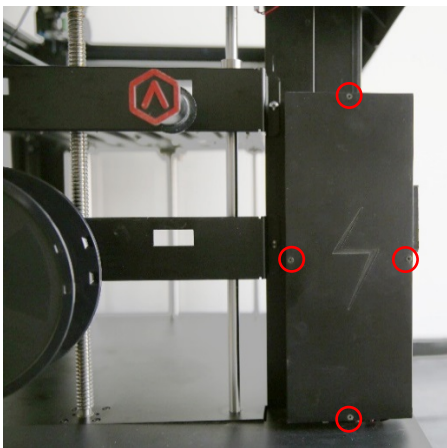


### STEP 2: Remove Acrylic Back Panel with Side Door



Remove the back panel of the printer with a phillips head screwdriver. The attached side door will also be removed with this panel.
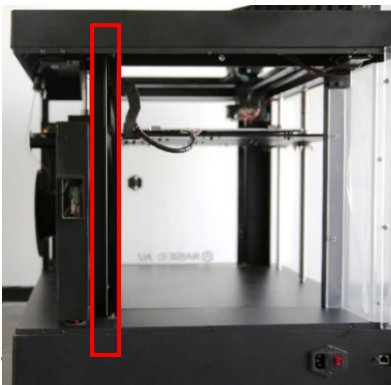Set the panel and screws aside.

N2: 10 screws

N2 Plus: 11 screws

## STEP 3: Open the electronic box cover

Remove the 4 fixing screws with a 2mm hex wrench.

If your model does not have visible screws, this cover may be removed by utilizing the push tabs that connect the cover to the frame.

## STEP 4: Remove the Wires Path Covering

If your printer model has a covering for the wire-path behind the electrical box, remove this covering. (See Left) If there is no removable cover on the wiring guide tube of your printer, please inset the end of the cable into the gap between guide tube and bottom cover. Then drag it into the electronic box. (See Right)

- Pass the white Filament Run-out Sensor cable through the wire path along the back side of the machine.
- Feed the end of this cable down under the printer and loop the cable back up into the electrical compartment.
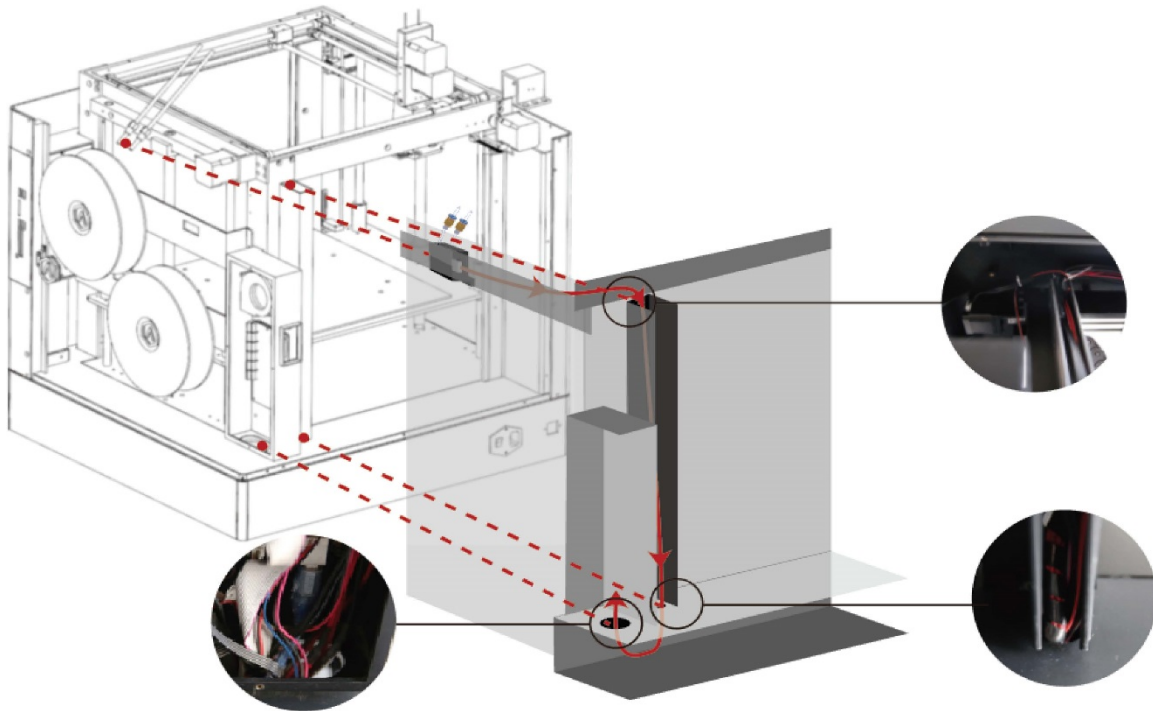


Use the included adapter (C) to connect the Filament Run-Out Sensor to the motion controller board with the 4-pin end.
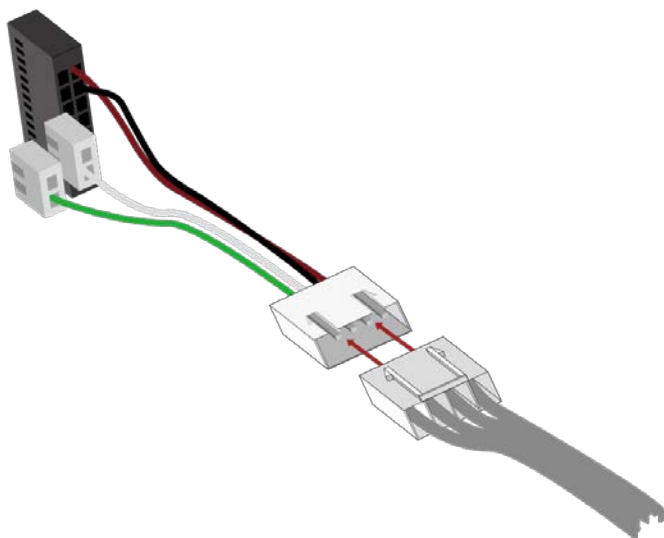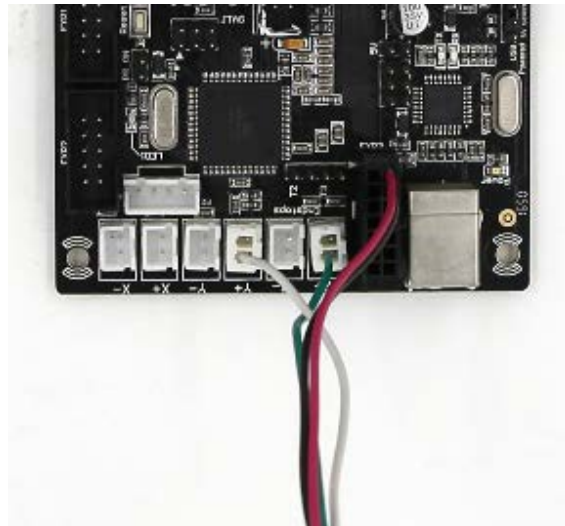
Attach the other three ends of the adapter onto the Motion Controller Board as shown in the following pictures:
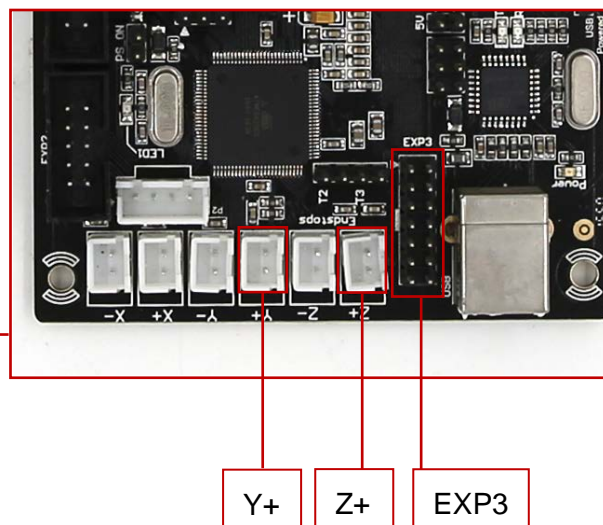
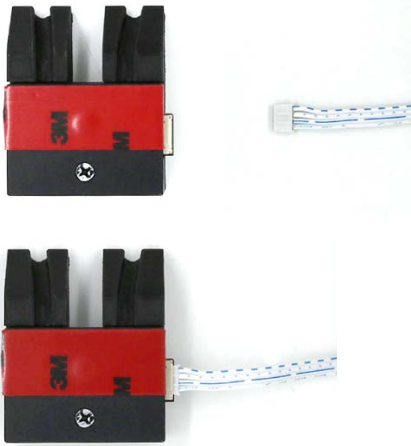Red-black cable to EXP3 (slot on terminal face to right),
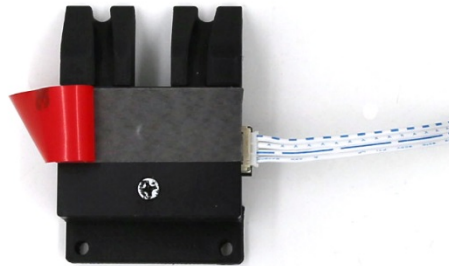
White Cable to Y+,

Green Cable to Z+.



Wiring complete:



Y+    Z+    EXP3

## STEP 6: Assemble the Filament Run-Out Sensor

Connect the white Filament Run-Out Sensor cable (B) to the Filament Run-Out Sensor (A). Remove the tape covering.

## STEP 7: Check the Filament Run-Out Sensor function

Power on the printer. Check whether the red lights on sensor are on or not with no filament passing through the sensor. If the lights are on, please power off the printer and move onto the next steps.

If the lights are not on, please contact support at help.raise3d.com.

## STEP 8: Replace the Bowden Tube

1)  If the original Bowden Tubes on your printer are with **4mm-OD**:

●   Remove the original Bowden tubes completely and replace them with the included Bowden tubes from the Run-Out Kit (D). To release the tubes, press and hold the blue ring on the coupling.
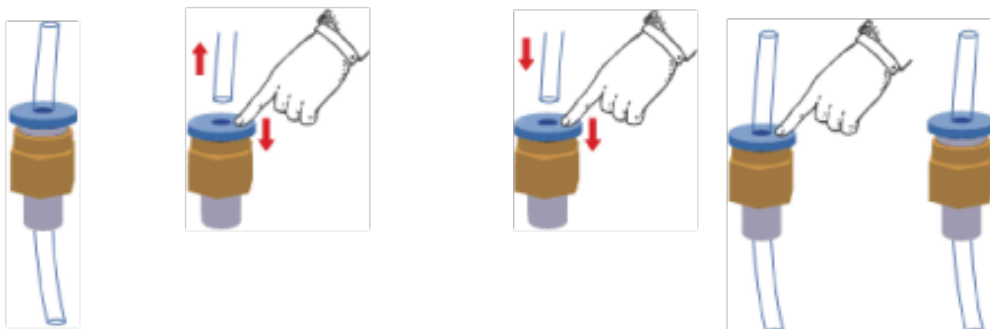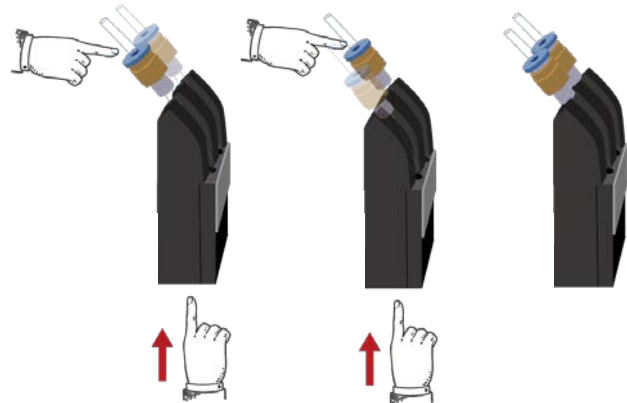
2) If the original Bowden Tubes on your printer are with **6mm-OD**:

● Keep the origin tubes and directly insert the new 4mm–OD tubes to pass through.
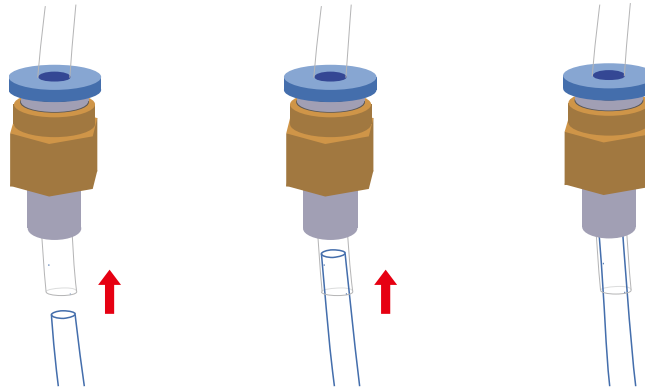
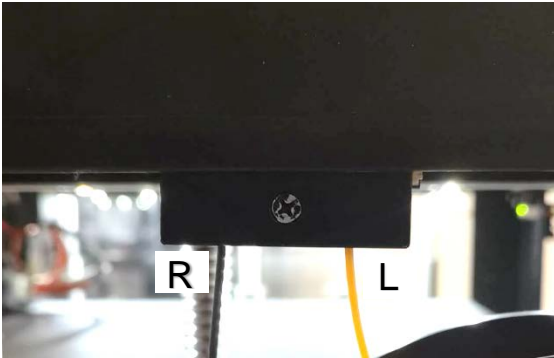## STEP 9: Install the Filament Run-Out Sensor

Insert the Filament Guide Tubes into the two holes located at the end of the guiding paths of the plastic back cover. And fix the tubes into the guiding paths.
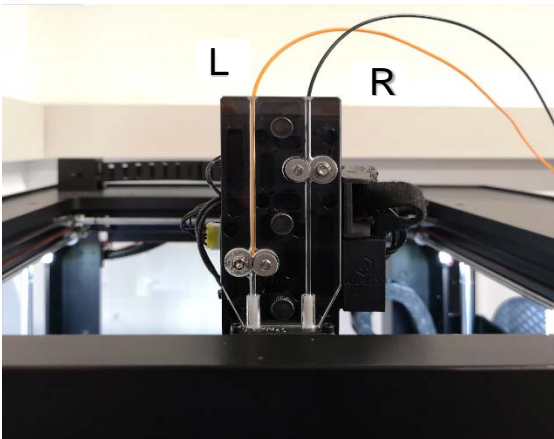
Adjust the height of the sensor until the top screw is hidden by the body of the printer, and the top of the bottom screw lies flush along the panel.
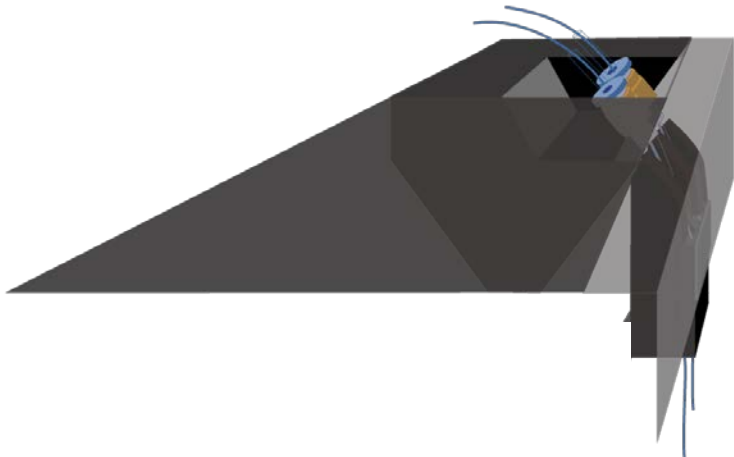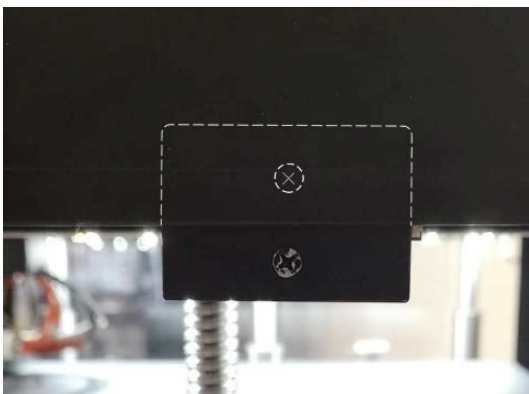
## STEP 10: Loading



Load filament through the Run-Out Sensor and up through the Bowden tube to make sure the filament path is assembled correctly.



Note the filament feeding order for each nozzle to prevent false alarm.

## STEP 11: Attach All Removed Parts

Re-attach the components that have been removed.
This includes:

- The Wire-Path Covering (Step 9)
- Motion Controller Box covering (Step 8)
- Back Panel and door (Step 2)

## STEP 12: Attach All Removed Parts

Please download Motion Board Firmware with FRS version from
https://www.raise3d.com/pages/filament-run-out-sensor-installation-instruction and Version 0.9.7
Touchscreen Firmware from https://www.raise3d.com/pages/download.
Save the two firmwares in USB storage. Attach the USB storage onto the screen and reboot the printer.
Continue to the "Motion Controller Firmware Update" for instructions on how to update to the motion board firmware.