

**Fusion3**

# **EDGE 3D Printer**

## **TROUBLESHOOTING: FILAMENT MONITOR**

**Revision 5/5/2023**

# TROUBLESHOOTING THE FILAMENT MONITOR

Signs & symptoms of issues with your filament monitor and how to fix them.

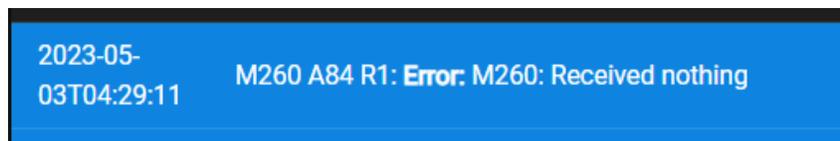
## SIGNS OF ISSUES WITH THE FILAMENT MONITOR

Here are some signs you may have a problem with your filament monitor:

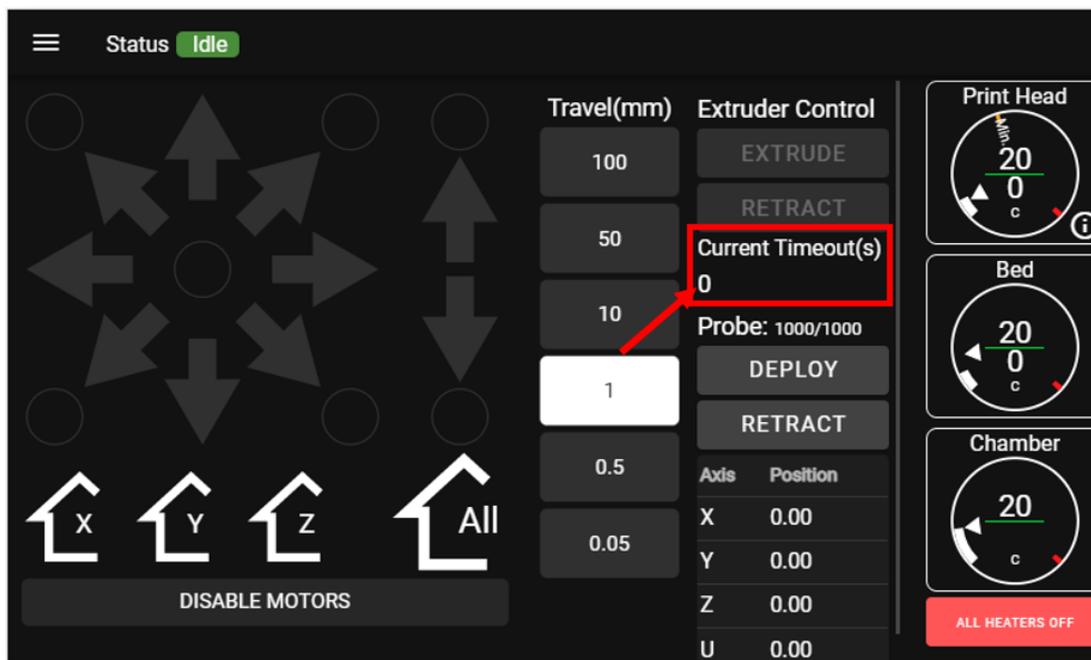
- It does not catch filament feed issues or jams where the filament is not moving at all.
- You see "Error: M260 I2C transmission error" red messages in the console or popping up on the screen.



- You see "M260 A84 R1: Error: M260: Received nothing" messages in the console



- On the Control screen, the value under "Current Timeout" is 0.



- If you attempt to adjust the timeout value, your adjustment doesn't "stick" or "take".
- With the printer idle, if you open the extruder and manually rotate the filament monitor wheel, you do not see an orange LED blink.

## WAYS THE FILAMENT MONITOR CAN FAIL

There are three main failure modes:

- The I2C communication is lost
- The monitor loses power
- The monitor is mechanically stuck and doesn't rotate when it should

### Loss of I2C Communication

Will manifest as:

- Error messages in the console as described above
- "0" under "current timeout" and an inability to set the timeout value

The monitor will still power on and blink orange in this state, and may generate error signals when it detects a feed error. However it will not reset appropriately which may result in repeated false feed errors one after another until the printer is power cycled.

### Loss of Power

Will manifest as: All symptoms described in the first section.

### Mechanically Stuck

Will manifest as:

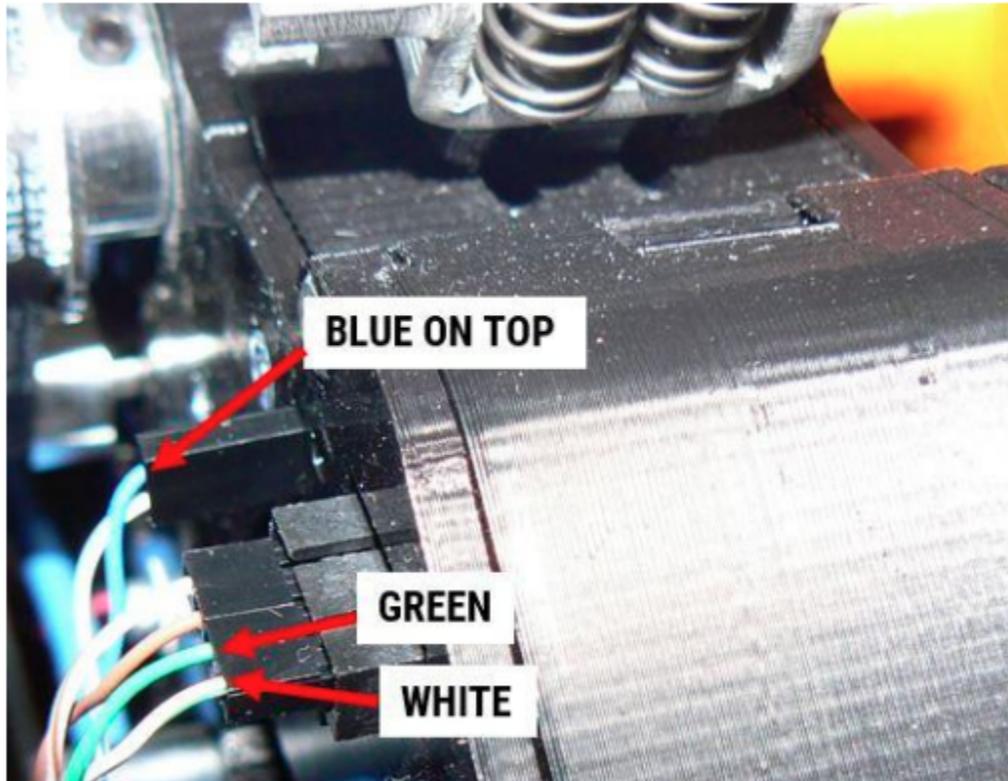
- Failure to correctly detect feed problems
- False feed errors when no problem is present

## STEP 1: DIAGNOSE TYPE OF FAULT

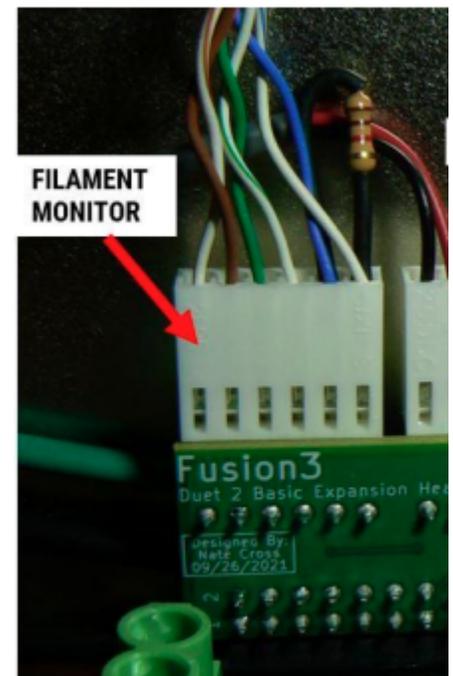
Use the information above to determine what kind of fault you have.

## STEP 2A: FIXING I2C COMM ISSUES

1. Make sure the blue and white wire pair is plugged into the encoder at the extruder
2. Make sure the blue wire is on top.

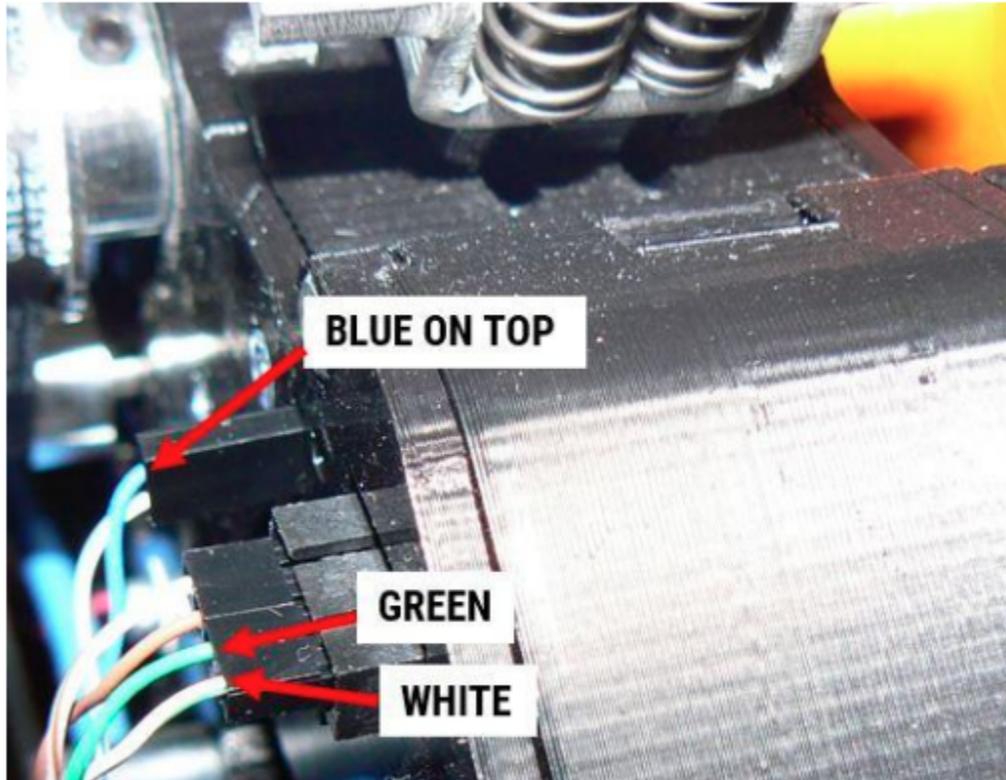


3. Make sure the pins the connector attaches to haven't been broken off the board (will wiggle if this happens).
4. Make sure the blue/white leads are twisted together in between the connector and where they exit the blue over-sleeve.
5. Make sure the pins in the housing aren't falling out.
6. In the electronics bay, make sure the encoder connector is fully seated.
7. Make sure the resistor is intact between the blue and white wires.
8. If possible, check continuity through the blue and white wires to make sure the cable isn't broken.
9. Replace the cable with a new one.



## STEP 2B: FIXING POWER ISSUES

1. Make sure the 4 wire connector is fully seated at the extruder.
2. Make sure the white/green pair faces towards you



3. Make sure the pins in the housing aren't falling out.
4. In the electronics bay, make sure the encoder connector is fully seated.
5. If possible, check continuity through the white/green and brown/white wires to make sure the cable isn't broken.
6. Replace the cable with a new one.

## STEP 2C: FIXING MECHANICAL ISSUES

1. Unload filament from the printer.
2. Make sure the encoder wheel can rotate smoothly through its entire rotation without any hiccups or rough spots.
3. Make sure the PTFE sleeve hasn't backed out and is touching the encoder wheel
4. Make sure the rubber wheel isn't damaged or split. Replace if needed.

5. Make sure the door and idler bearing are intact and pushing filament into the encoder wheel.
6. If you have recently disassembled the extruder, make sure you left the encoder mounting screws slightly loose to give it some "float", as described in our extruder rebuild document.

### **STEP 3: I CAN'T LOCATE THE PROBLEM AND IT STILL DOESN'T WORK**

Replace the wire harness: <https://store.fusion3design.com/products/edge-tunell-filament-monitor-harness>

Replace the monitor board: <https://store.fusion3design.com/products/f410-filament-monitor-board-1>

Replace the encoder wheel:

<https://store.fusion3design.com/collections/edge-3d-printer/products/filament-monitor-wheel>

Replace the monitor door: <https://store.fusion3design.com/products/f410-filament-monitor-door-1>

Replace these components by following our extruder rebuild guide:

<https://www.fusion3design.com/fusion3-edge-manuals-downloads/>