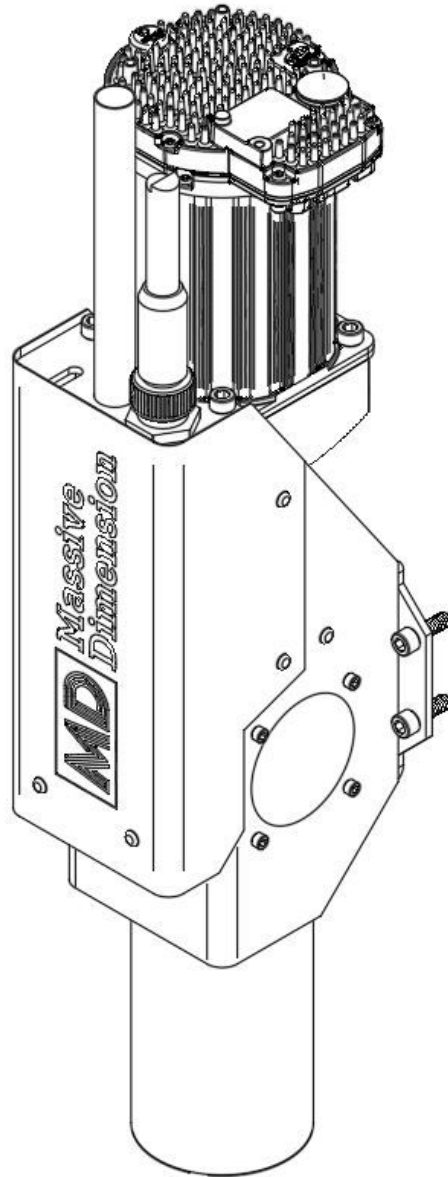


# Massive Dimension

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## MDPH2 - User Manual and Setup Guide

Rev 3 - 4/9/19



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## General Operation

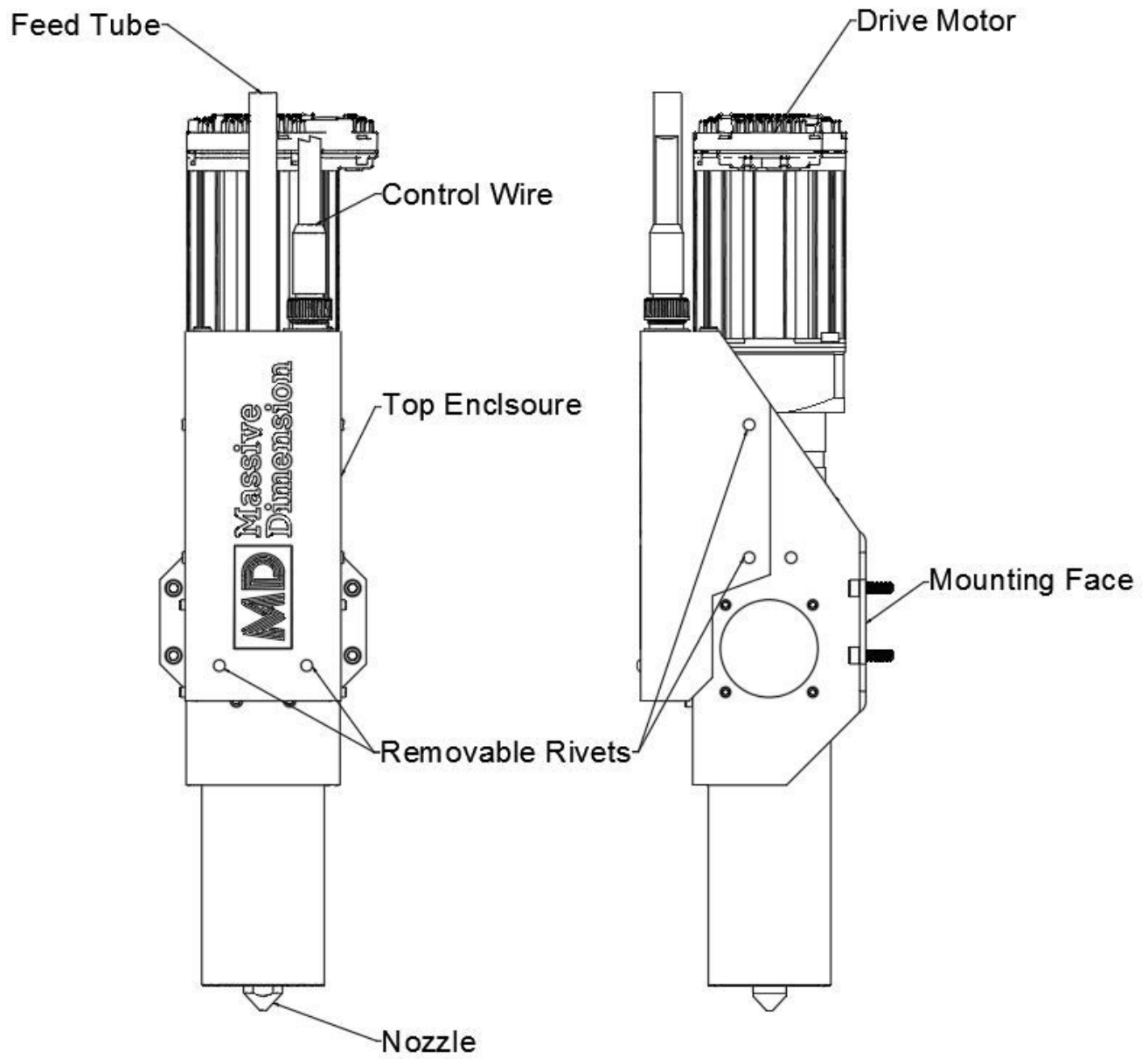
All pellet head extruders from Massive Dimension operate on a similar principle, with four main functions. These functions all have to work together in unison to have a successful print. Since all customers movement systems are different, care will need to be taken into account during integration.

1. **Pellet Feeding** - This covers the feeding of pellets from the storage bin to the pellet head feed throat, where the feed tube enters the extrusion screw section. The Massive Dimension Pellet Head 2 (MDPH2) can extrude powders to 1/8in diameter pellets. Issues with feeding material will cause inconsistent output.
2. **Screw** - Extrusion and screw speed are controlled by the movement controller, supplied by the customer and depended on the customers movement setup. The MDPH2 motor is setup to have a torque limit so the screw cannot be over torqued. The screw is removable by taking off the nozzle. The drive motor uses *step and direction* input signals or *Quadrature A/B*.
3. **Nozzle** - With the MDPH2 nozzles sizes can range from 1mm up to 5mm. The larger the nozzle size the slower the print speed with the same volume output rate.
4. **MDPH2 Steps per mm** - Steps per mm will vary due to nozzle size, material, temperature, and speed settings. Typical Steps per mm range from 10 to 50.
5. **Movement System** - Customer movement systems such as robotic arms or XYZ systems need to be sturdy and large enough to move the pellet head around. The MDPH2 in stock configuration weights 8.39kg (18 pounds).

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## Overview of Pellet Head

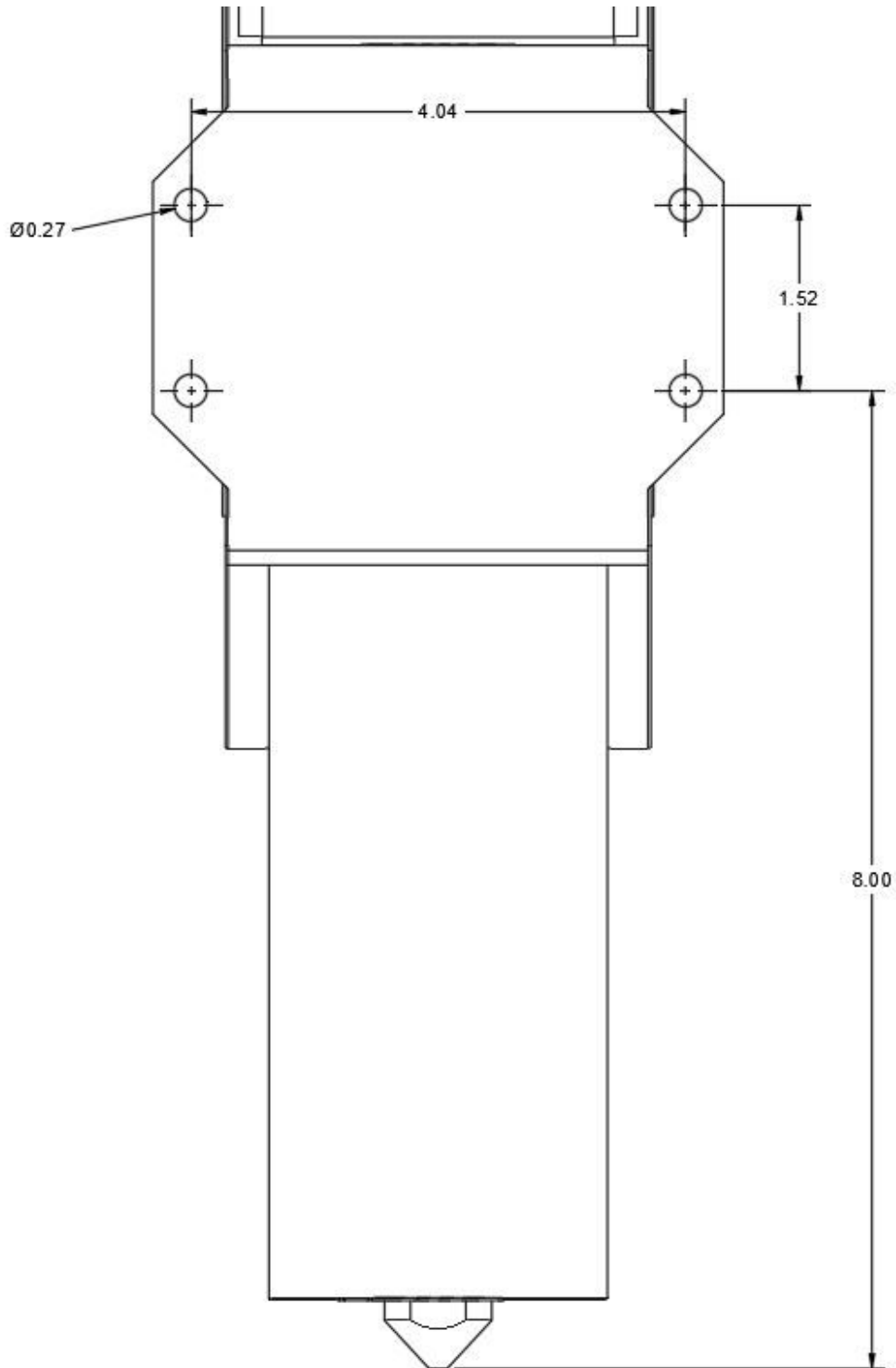
1. Feed Tube
2. Drive Motor
3. Nozzle
4. Control Wire
5. Top Enclosure
  - a. Removable Rivets
6. Mounting Face



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## Mounting Unit

The MDPH2 has a four hole bolt pattern outlined in the drawing below. Four ¼-20 bolts are provided with the pellet head for mounting. All four holes should be used when mounting.



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## General Setup

Setup of the MDPH2 is highly dependent on the end users setup. The MDPH2 is designed to be a retrofitted on customer pre-existing movement systems. Slicing and printing are also inherently dependent on the movement system setup and will not always be the same setup or process for printing. The following steps are to help customers mount and setup the motor for the first time.

**Step 1:** Mount MDPH2 onto movement system using all four mount holes

**Step 2:** Wire in controls to your movement system and check all electrical connections are secure. See wire diagram on following pages. **\*\* For voltages over 120VAC review "How to modify the IPC35-CABLE110 for use with 190-250VAC" \*\***

**Step 3:** Unscrew and remove nozzle.

**Step 4:** Remove feed screw. Needle nose pliers may need to be used to grab the tip of screw if it does not drop out when nozzle is removed.

**Step 5:** Install ClearPath-MSP Software. Click [here](#) for a direct link. To install MSP, save the zip file to your local computer, extract the .exe file, and run it.

**Step 6:** Open MSP Software.

**Step 7:** Connect motor to computer via USB. Remove white rubber cover on top to access USB port.

**Step 8:** Close "ClearPath Tuning," you will be using a pre-made tuning file.

**Step 9:** Click **File>Load Configuration**.

**Step 10:** Locate and load the MDPH2\_Configuration\_File.mtr. Click [here](#) to download, or go to product listing page to download. Steps per revolution should be set to 800, using Step & Direction input. For more specific details about the motor read the [Clearpath Manual](#).

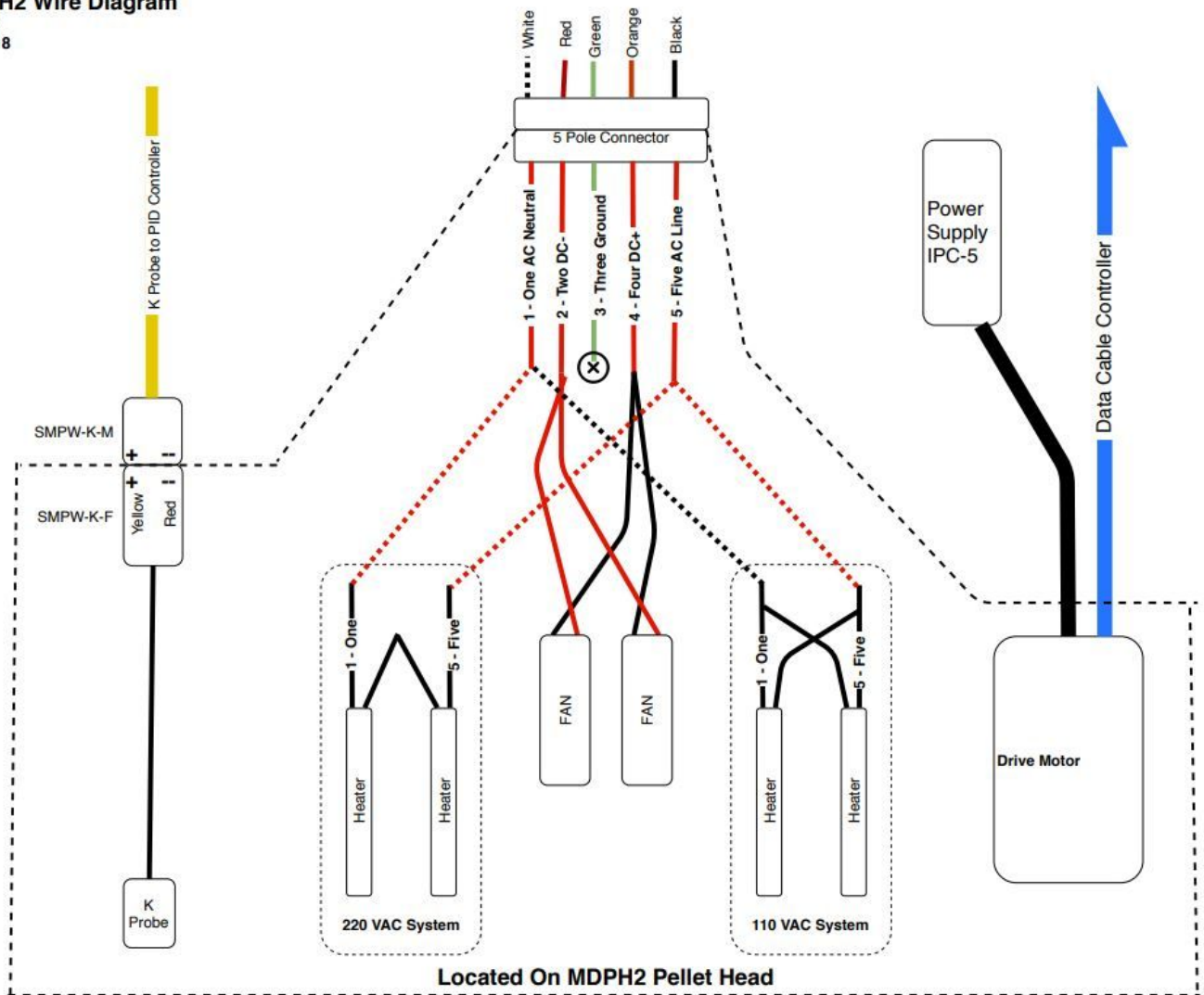
**Step 11:** Close software and unplug USB cord.

**Step 12:** Setup Complete

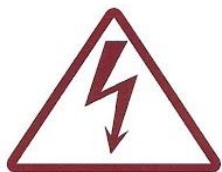
# Wiring Setup / Diagram

## MDPH2 Wire Diagram

Rev: 3  
12/26/18



Note: The pellet head will come pre-wired with either 110VAC **OR** 220VAC. It is not a dual voltage system.

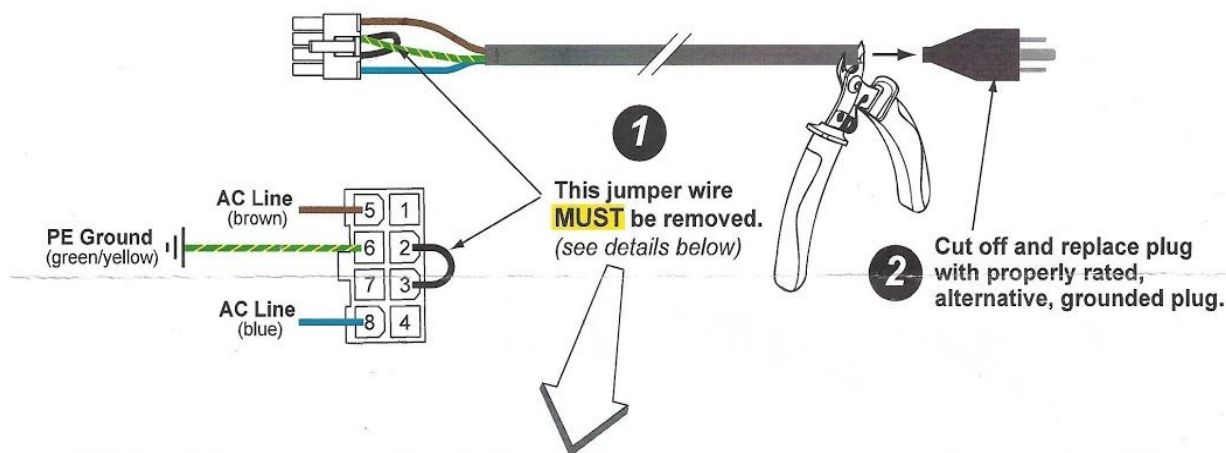


# ATTENTION!



## How to modify the IPC35-CABLE110 for use with 190-250VAC

Follow this procedure to modify the IPC35-CABLE110 for use with 190-250VAC mains power only. **DO NOT MODIFY CABLE** if using with 110-120VAC mains power.

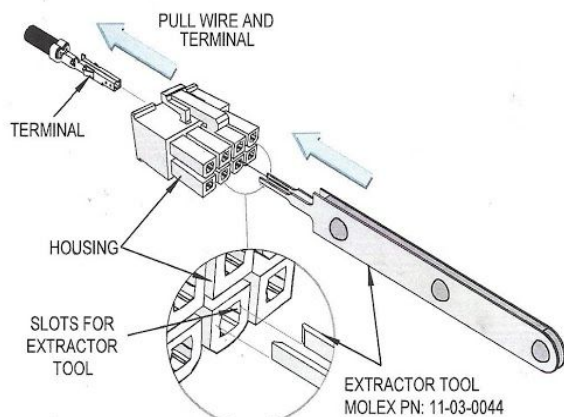


### How to remove or cut jumper wire

**NOTE:** Disconnect cable from AC before modifying.

#### Preferred Method

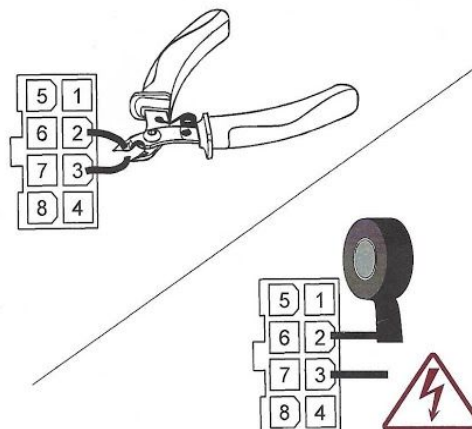
Remove terminals with Molex extraction tool.



OR

#### Alternative Method

Cut wire and insulate with heatshrink or tape.  
**Note:** Exposed leads are a shock hazard.



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### **Care and Maintenance**

The MDPH2 is designed to need minimal maintenance. Care should be taken to make sure the nozzles and system as a whole is fully warmed up before any printing extrusion takes place.

- ~ Always empty the screw by running the system out of pellets.
- ~ The screw can be removed and manually cleaned if needed. This is not always required

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### **Warranty**

The MDPH2 comes with a 1 year warranty on all parts. Contact us for more details.