

# Julia Pro Dual Nozzle Printer

## Quick Operation Guide

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### 1 Introduction

Julia Pro Dual Nozzle 3D Printer is developed by Fractal Works . Its quick swap-able dual nozzle enables to print multiple objects and shapes at the same time.

### 2 Design and Specification

Firstly, the 3D model to be printed need to be designed using Fusion360 software. In this software 3D geometry of the object to be printed is visualized. For designing the 3D model refer to the manual. The 3D model design file need to be exported in .stl or .obj format.

Fractactory is machine specific software for selecting the parameters related to the Julia Pro Dual Nozzle printer like extruders, temperature, material, print speed etc. The .stl design file generated, need to be added to the Fractory software for setting the printer parameters. Refer to the manual for description on setting the parameters for the printer. A final .gcode file will be generated for printing.

### 3 Operating Procedures

#### 3.1 Setup

Filament is inserted into the white tube through the joint on the left side of the printer. Then the filament need to be inserted into the nozzle after opening the case and by pressing the lever on the sides. In order to load the filament to the nozzle :

- Go to Printer menu → Select Control → Select Filament → Select Change Filament
- Check whether the filament name mentioned is same as the filament inserted
- Click Load

Printer nozzle and bed temperature is set as 210 °C and 65 °C for PLA material. For setting the nozzle and bed temperature :

- Go to Printer menu → Select Control → Select Temperature
- Select nozzle 0 or 1 appropriately
- Adjust and set bed and nozzle temperatures appropriately using up-down arrows

Some of the filament at the end of the nozzle is drained out so as to get started with a smooth printing. After this the nozzle and bed temperature is made normal in order to do calibration of the bed.

## 3.2 Calibration

The bed alignment is corrected with the help of screws and LEDs. The procedure is as follows :

- Go to Printer menu → Select Calibrate → Select Calibration Wizard
- As the nozzle moves to the first point, tighten or loosen screw at the bottom of bed until the red LED light at bottom of bed stops blinking and glows constantly.
- Repeat the above step for each of the points

It is ideal to have slight friction between the nozzle and bed for proper 3D printing of the object which is checked by using a paper and adjusting the nozzle position. Once this is fixed, the system is set for auto calibration of 16 points on the bed.

## 3.3 Printing Process

- Put some glue (can use fevistick as the adhesive) on the bed surface
- Mount USB memory device to the printer
- Go to Printer menu → Select Print → Select USB
- Using up-down arrow select the corresponding gcode file to load and press print to start printing process
- The window will show the print time and time left for printing at this stage
- Once the printing process is done let the printer cool down, after that remove the 3D model from the bed surface carefully.
- Cut out the brim of the model and supports carefully with the help of cutter to get the final printed object

## 4 Do's and Dont's

Do's :

- Nozzle and bed must be clean, dust particles may deteriorate the model
- Ensure to calibrate before operating.
- Ensure nozzle and bed temperatures are set appropriately to make the material flow smooth
- Drain nozzles once before calibration.

Dont's :

- Do not touch the nozzle directly.
- Do not disturb the nozzle or bed while printing as it will be at high temperatures