Jenny corexy voron V1.2 mainpage

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Overview

this is mainpage of jenny corexy 3d printer V1.2

jenny corexy is a metallized structure inspire by vorondesign voron2.4 (https://github.com/VoronDesign/Voron-2).

we use a more stable 4040 extrusions frame,but keep 2020 extrusions as gantry let it not too heavy. The gantry use a 9mm widened belt,to keep a bigger print size. Also expanded the width of the linear rails.

All structural part use aluminum sheet with stainless steel column let printer can stable in high temperature environment.But some of the beautiful parts that don't matter are whit 3D printed.

I also modified the leveling probe, using a structure I named JennyTouch. It is a contact type photoelectric sensor mechanism,can probe aluminum 、PEI、 glass and any solid platform.

Resources

- github (https://github.com/yzyyou/jenny-corexy-V1.2)
- BOM page
- 3d model (https://grabcad.com/library/jennycorexy-3d-printer-v1-2-1)

Communication

- discuss (http://discuss.jenny3dprint.com) (trouble shooting and feature suggestions)
- facebook (https://facebook.com) (assembly show and printing show)
- youtube (https://youtube.com) (Serial Request and development show)
- discord (https://discord.com) (timely communication)

Brief assembly instructions

WARNING

- The hot bed is powered by high-power 220V alternating current, pay attention to the protection of relevant connection points and avoid touching by human body when powered on.
- The motor drive module adopts aluminum heat sink, so do not touch the solder joint nearby when pasting and installing, so as to avoid burning the circuit.

⚠️

- The mechanical installation part shall have pre-installation (incomplete screw tightening) step and final adjustment and locking (complete screw tightening) step.
- The belt of XY axis and 4Z has tensioning devices. When tensioning the belt at the initial stage of installation, the adjusting device should be adjusted in an adjustable state.
- Please confirm whether there is short circuit possibility, whether there is metal touching the main board, the driver module is inserted upside down, and the exposed wire ends are exposed, etc.

preparatory work

Recommended Tools

[Collapse]

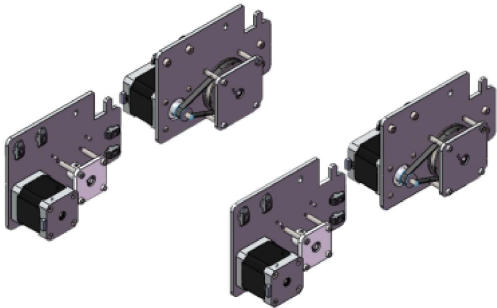|				
Electric screwdriver	Torque screwdriver	Adjustable wrench	Long nose pliers	Sleeve Wrench(optional)

The import of use torque screwdriver can read Screw Torque Specification (https://www.assemblymag.com/articles/94040-how-to-determine-a-torque-specification)

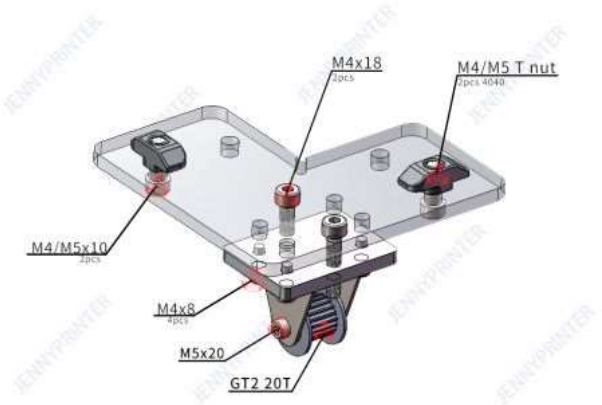## 4Z module assembly

bottom of 4Z Module

overview

Two sets of symmetrical installation

Make sure the motion resistance is minimal

top of 4Z Module

overview

Note：M4x18 screw is used to adjust the belt, no need to install to locked
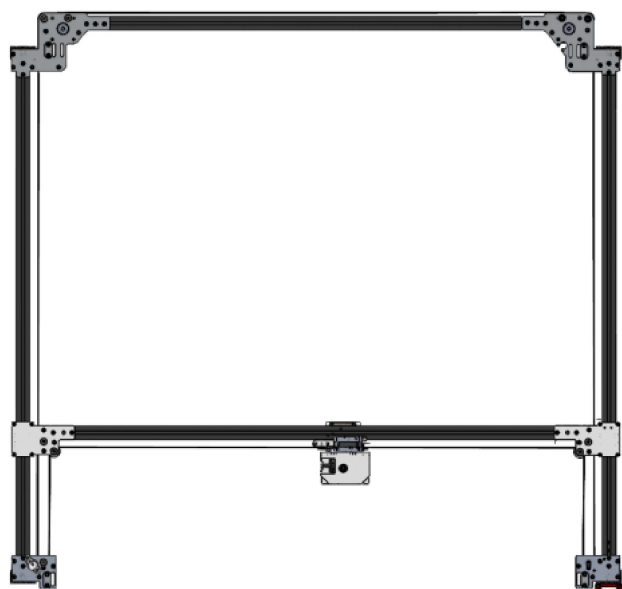
Framework Assembly

overview
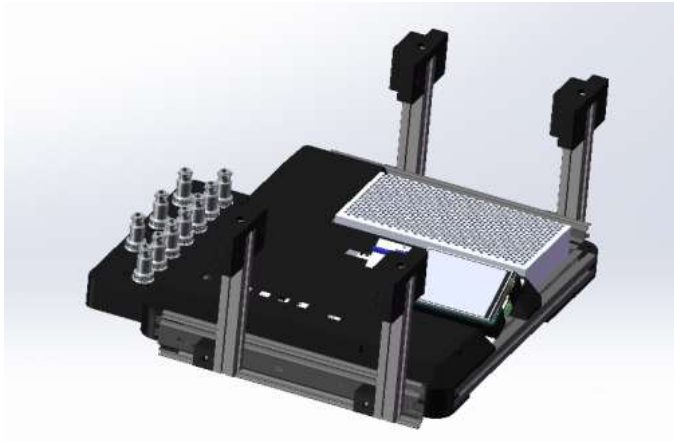

XY gantry Assembly

overview

Belt installation　(important step)

4Z Belt

XY Belt

Drawer Assembly

overview

Bed Assembly

overview

ATTENTION:Let's say you have a shell, you must install bottom of the panel before this step.

Circuit wiring and installation

overview

setup firmware

get your ip

check

- 1.**Endstop and probe check**

Make sure that none of the X, Y, Z Endstops or probe are being pressed, and then click Macros EANDSTOPS&PROBE STATUS . The terminal window should respond with the following:

```
probe: TRIGGERED
x:open y:open z:open
```

If any of them say "triggered" instead of "open", double check to make sure none of them are pressed. Next, manually press the X endstop, click Macros EANDSTOPS&PROBE STATUS again, and make sure that the X endstop says "triggered" and the Y and Z endstops stay open. Repeat with the Y and Z endstops.You may find that one of your Endstops has inverted logic (it displays "open" when it is pressed, and "triggered" when it is not). In this case, go to your printer's config file and add or remove the ! In front of the pin. For instance, if your X endstop was inverted, you would add a ! In front of your pin numberas follows:

```
endstop_pin: PD12 —> !PD12
```

- 2.**Separate motor check**

To verify that each stepper motor is operating correctly.click Macros TEST X、TEST Y、TEST Z0、TEST Z1、TEST Z2、TEST Z3 for every axis.Motors should go UP first then down. If the stepper motors do not move, check wiring for loose onnectors.

- 3.**Print size and HOME check**

open printer.cfg verify position_endstop and position_max value for your printer.

```
[stepper_x]
...
position_endstop: 350
position_max: 350
...
```

```
[stepper_y]
...
position_endstop: 350
position_max: 350
...
```

```
[stepper_z]
...
position_endstop: 7 #modfiy this when nozzle changed.more small more far.
position_max: 512
...
```

Click X and Y yellow bottom in Controls ,printhead HOME XY.Aand move printhead just above Z endstop's probe.the send M114,get current XY Position.

```
X:290.00 Y:350.00 Z:20.00 E:0.00
```

Use this X290 Y350 value verify homing_override in printer.cfg:

```
[homing_override]
...
G0 X290 Y350 Z50  F4800
```

- 4.**Mount probe position check**

Click MOUNT PROBE bottom in Macros, printhead move to mount probe;click UMOUNT PROBE printhead move to unmount probe.the move action is define in printer.cfg

```
[gcode_macro MOUNT_PROBE]
gcode:
       G1 X249 Y318 F3600;
       G1 X249 Y348 F3600;
       G1 X157 Y348 F3600;
       G1 X157 Y318 F3600;
```

```
[gcode_macro UMOUNT_PROBE]
gcode:
       G1 X157 Y318 F3600;
       G1 X157 Y348 F3600;
       G1 X249 Y348 F3600;
       G1 X248 Y318 F3600;
```

- 5.**Gantry level point check**

Verify this 4 points in your printer.cfg,make sure that probe touch this 4 points are in corner of bed ,and nothing will stand in the way.

```
[quad_gantry_level]
...
points:
       30, 20
       30, 270
       320, 270
       320, 20
...
```

- 6.**Z 0 position check**

After do gantry level,move printhead in the middle of bed,and control Z to 0 position. The position_endstop in printer.cfg to control nozzle for or near to the bed .

```
[stepper_z]
...
position_endstop: 7 #modfiy this when nozzle changed.more small more far.
```

printer.cfg reference

Debugging

PID

use this command to calibrate hotend pid:

```
PID_CALIBRATE HEATER=extruder TARGET=220
```

And this command to calibrate bed pid:

```
PID_CALIBRATE HEATER=heater_bed TARGET=60
```

when finished will have some information like this:

PID parameters: pid_Kp=18.731 pid_Ki=0.827 pid_Kd=106.065 The SAVE_CONFIG command will update the printer config file with these parameters and restart the printer.

Use this PID value in printer.cfg

more info Klipper PID calibrate (https://github.com/KevinOConnor/klipper/blob/afca515e2c2db240b4d354a0ae665479894ef89b/docs/Config_checks.md).

Calibrate extruder pressure

NOTE:When you have send this part of the command,if you want to print another gcoode,restart 3d printer please.

- Prepare for the test by issuing the following G-Code command:

```
SET_VELOCITY_LIMIT SQUARE_CORNER_VELOCITY=1 ACCEL=500
```

- This command makes the nozzle travel slower through corners to emphasize the effects of extruder pressure. Then for printers with a direct drive extruder run the command:

```
TUNING_TOWER COMMAND=SET_PRESSURE_ADVANCE PARAMETER=ADVANCE START=0 FACTOR=0.005
```

- After that,print this gcode: square_tower_test.gcode (https://github.com/yzyyou/jenny-corexy-V1.2/blob/main/Docs/square_tower_test.gcode)

- The pressure_advance value can then be calculated as pressure_advance = <start> + <measured_height> * <factor>. (For example, 0 + 12.90 * .005 would be 0.0645.)
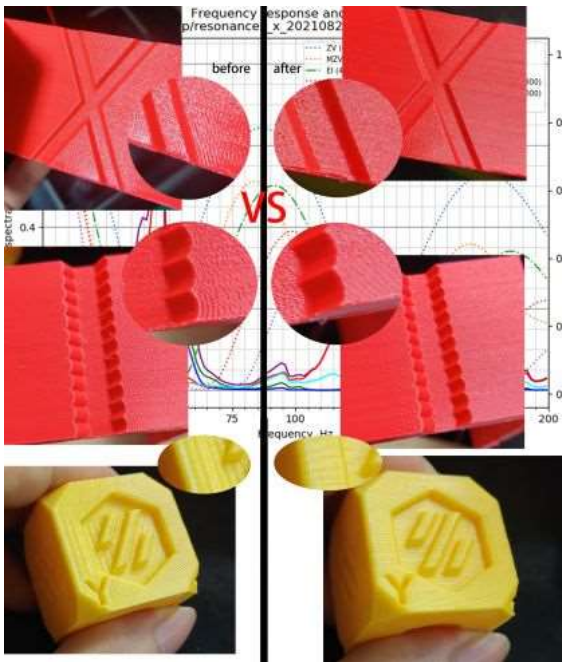
Insert pressure_advance value in printer.cfg.

JENNY COREXY BGM extuder **pressure_advance = 0.046** about.

more info Klipper pressure (https://github.com/KevinOConnor/klipper/blob/afca515e2c2db240b4d354a0ae665479894ef89b/docs/Pressure_Advance.md)

Resonance compensation

After do this step,you can get this effect:

NOTE:When you have send this part of the command,if you want to print another gcoode,restart 3d printer please.

- Increase **max_accel** and **max_accel_to_decel** parameters in your printer.cfg to 7000. remember save config and restart firmware.

  in section [printer]:

```
max_accel  : 7000
max_accel_to_decel : 7000
```

- Disable Pressure Advance:

```
SET_PRESSURE_ADVANCE ADVANCE=0
```

- execute command:

```
SET_INPUT_SHAPER SHAPER_FREQ_X=0 SHAPER_FREQ_Y=0
```

  If you get "Unknown command" error, you can safely ignore it at this point and continue with the measurements.

- execute command:

```
SET_INPUT_SHAPER SHAPER_TYPE=MZV
```

- Execute the command:

```
TUNING_TOWER COMMAND=SET_VELOCITY_LIMIT PARAMETER=ACCEL START=1250 FACTOR=100 BAND=5
```

This command will increase the acceleration every 5 mm starting from 1500 mm/sec^2: 1500 mm/sec^2, 2000 mm/sec^2, 2500 mm/sec^2 and so forth up until 7000 mm/sec^2 at the last band.

- Print this ringing_tower_test.gcode (https://github.com/yzyyou/jenny-corexy-V1.2/blob/main/Docs/ringing_tower_test.gcode)

This PLA filament 0.4mm nozzle used in gcode.

- stop the print earlier or wait for the result

You can stop the print earlier if the ringing is clearly visible and you see that acceleration gets too high for your printer (e.g. printer shakes too much or starts skipping steps)

- Measurement and calculation

- Save parameter in printer.cfg

in section [input_shaper]:

```
shaper_freq_x: ...
shaper_freq_y: ...
shaper_type: mzv
```

- Revert the changes to max_accel and max_accel_to_decel parameters

After finishing this Resonance compensation do not forget revert change this in printer.cfg

more info Resonance_Compensation (https://github.com/KevinOConnor/klipper/blob/37efd1b8f19eadafb45d1d52148d5e21e3fef204/docs/Resonance_Compensation.md)

Use ADXL345 accelerometer Measuring_Resonances (https://github.com/KevinOConnor/klipper/blob/37efd1b8f19eadafb45d1d52148d5e21e3fef204/docs/Measuring_Resonances.md) This also can measurement the XY max_accel.

Skew correction

- Add a section [skew_correction] in print.cfg

```
[skew_correction]
```

- Print

print this Skew_correction_test.gcode (https://github.com/yzyyou/jenny-corexy-V1.2/blob/main/Docs/Skew_correction_test.gcode)

- Take your measurements

measured length AC BD AD

```
example AC=140.5 BD=140.1 AD=99.92 unit mm
```

- Set management value in print_start and clear in print_end

In PRINT_START:

```
SET_SKEW XY=140.5,140.1,99.92
```

In PRINT_END:

```
SET_SKEW CLEAR=1
```

more info skew_correction (https://github.com/KevinOConnor/klipper/blob/afca515e2c2db240b4d354a0ae665479894ef89b/docs/skew_correction.md)

---

speed tune

Modify these speed values to make the printer faster while maintaining quality.

- In section [printer]:

```
max_velocity: 200
max_accel: 3200
max_z_velocity: 10
max_z_accel: 200
```

- In section [stepper_n]:

```
homing_speed: 130
```

- In section [extender]:

```
max_extrude_only_velocity:100
max_extrude_only_accel:3000
```

- in section [probe]:

```
speed: 80.0
```

- In section [quad_gantry_level]:

```
speed: 120
```

shell (optional)

overview

- This page was last edited on 24 August 2021, at 15:53.
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