

APUS 2 Extruder

I n s t r u c t i o n



Please read and keep this manual carefully
before using our product properly

Product Overview

Name	APUS 2 Extruder
Brand	Phaetus
Size	39*50.5*48 mm
Weight	160g (including motor)
Filament Compatibility	PLA, ABS, PETG, TPU, PP, PC, PA, PEEK, PEI, as well as typical composite fiber filaments such as PLA-CF, ABS-CF, PETG-CF, PAHT-CF/GF, and etc.
Working Voltage	24v
Working current	0.6A (Recommended range 0.5-0.8A)
Gear Ratio	5.8:1

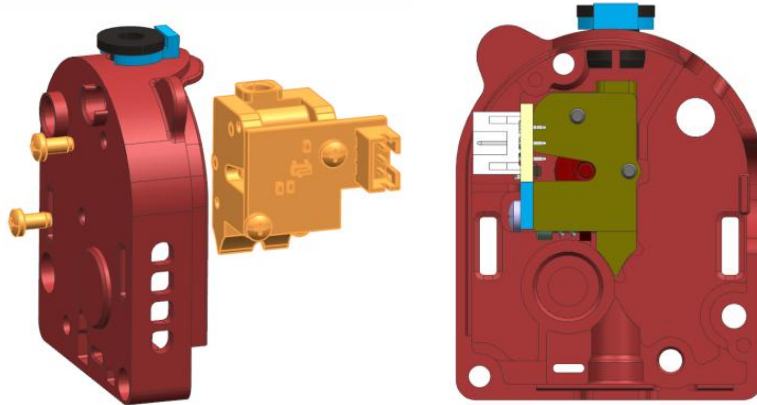
Product Features

1. High-speed and high-torque extrusion: A current of 0.5A can achieve a high extrusion force of over 70N. The gear ratio of 5.8:1 can quickly provide strong driving force.
2. Intelligent module design: Integrated material break sensor, achieving efficient and real-time material monitoring
3. RNC II Coating Innovation: Ultra-Wear-Resistant Gear Protection
4. Easy maintenance: 3 sets of screw design, suitable for mainstream models in the market

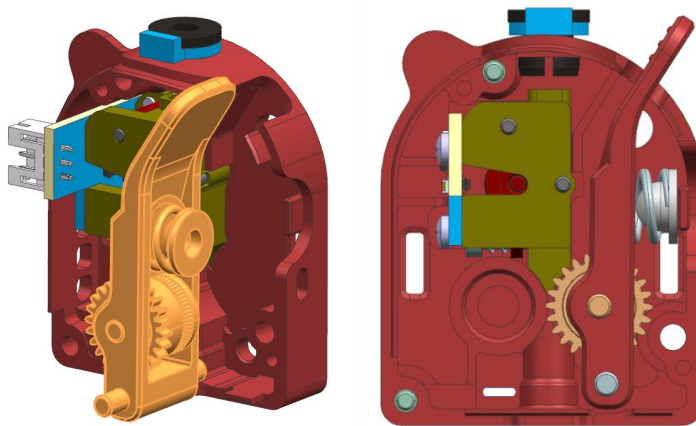
Installation and Assembly

- **Installation Steps**

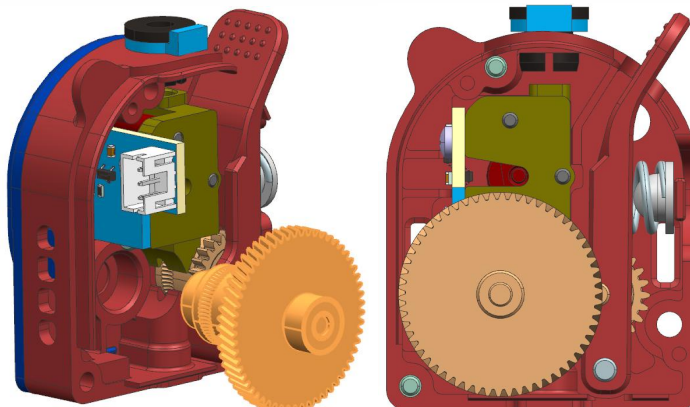
1. Mount the material break sensor on the front housing and fix it with M2*5 self-tapping screws.



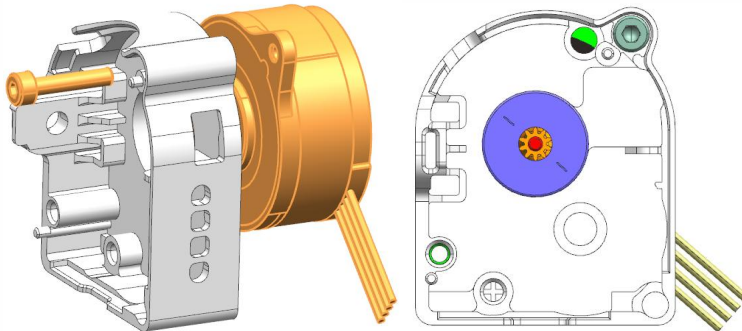
2. The swing arm of the driven extruder wheel is mounted on the front housing and secured to the housing holes through the pins, with one end of the spring against the circular groove in the swing arm and the other end tucked into a semicircular spacer and against the housing tab.



3. Plugging the active extruder wheel and bearing assembly into the housing groove

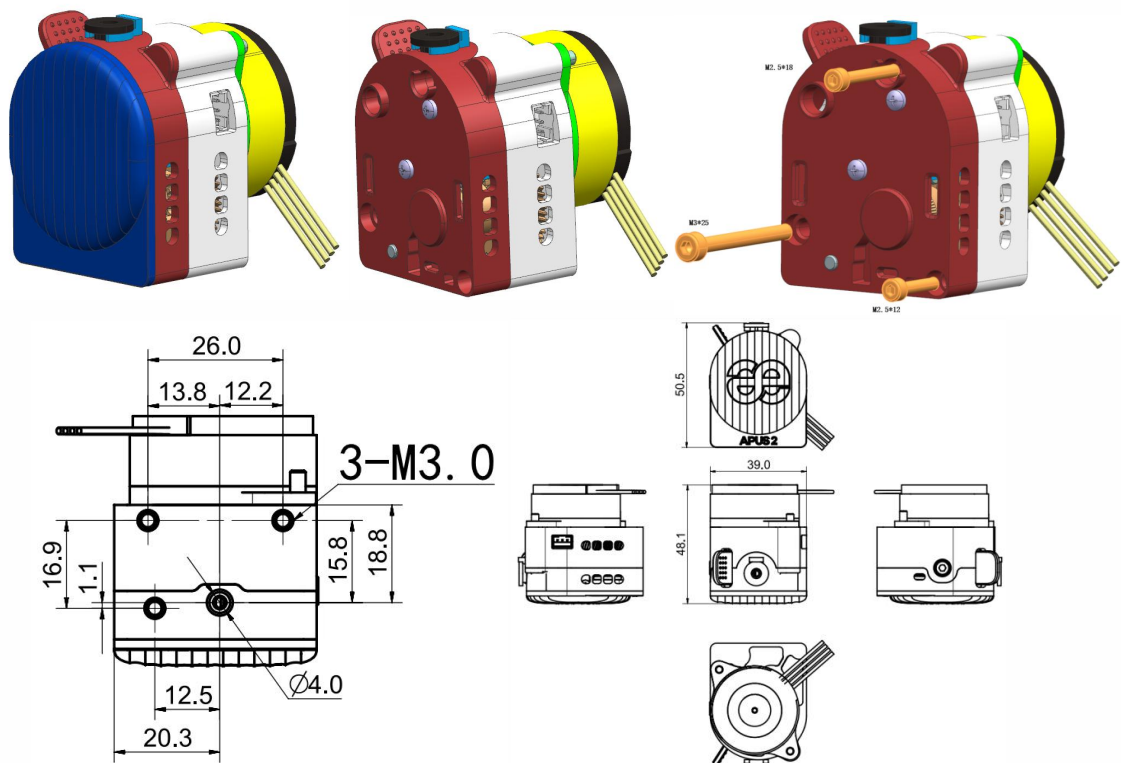


4. Fix the motor to the rear housing with M3*15 screws



5. Close the front and rear housing assemblies (take care to tilt the right side material break sensor into the housing first, then close the housing), then secure with screws, and finally close the rear cover.

- **Connection Instructions:** how to connect to various parts of the 3D printer such as stepper motors, hot ends, cooling fans, etc.
- **Mounting Dimensions**

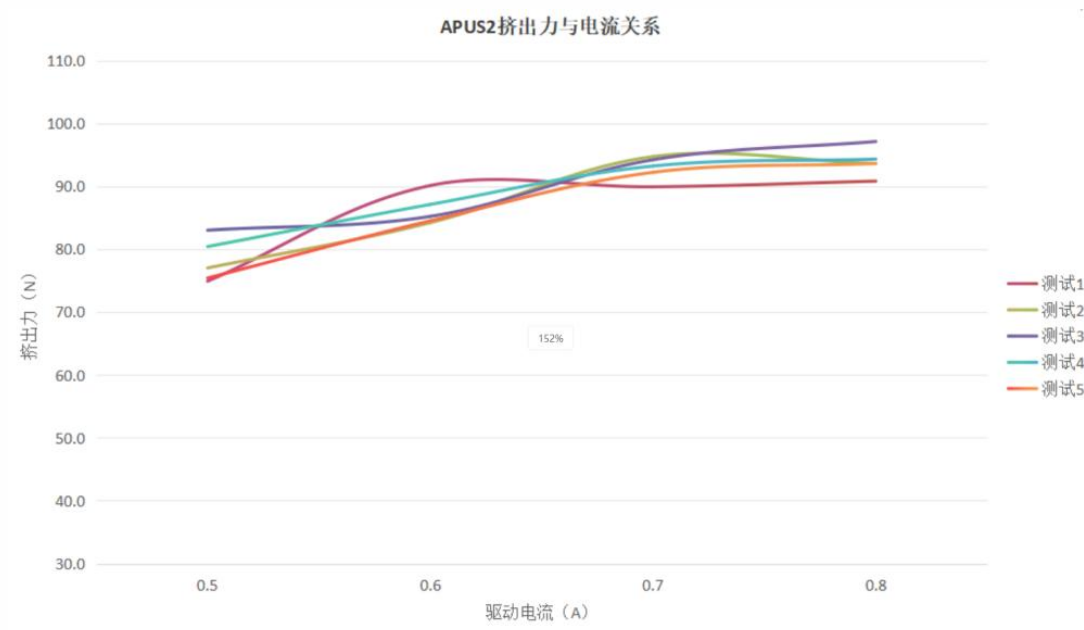


Technical Data + Safety Precautions

1. Stepper motor basic parameter configuration

rotation_distance: 1.0
gear_ratio: 10:58
[tmc2209 extruder]
uart_pin:
run_current: 0.6
stealthchop_threshold: 0

APUS 2 Extrusion and Flow Correlation Table



E Maximum speed 25mm/s (to be set according to hotend real flow rate)
E Maximum acceleration 5000mm/s² (to be set according to hotend real flow rate)
Installation external size: Length 48mm Width 39mm Height 50.5mm

2. Material Break Sensor Setting: [filament_switch_sensor]

Filament Switch Sensor. Supports the use of switch sensors (such as limit switches) for filament insertion and depletion detection.

See the command reference for more information.

[filament_switch_sensor my_sensor].

#pause_on_runout: True

pause_on_runout: True When set to “True”, the printer is paused as soon as exhaustion is detected.

Note that if pause_on_runout is False and not defined.

runout_gcode, exhaustion detection is disabled.

The default is True.

#runout_gcode:

A list of G-code commands that will be executed when exhaustion is detected.

See docs/Command_Templates.md for G-Code format.

(https://github.com/kuohu3/klipper/blob/feb15eaf2e5e3b64f5e847d8f66f046959304335/docs/Command_Templates.md)

This G-Code will be executed after a pause if pause_on_runout is set to True.

The default is not to run any G-Code commands.

#insert_gcode:

List of G-Code commands that will be executed after filament insertion is detected.

See docs/Command_Templates.md for G-Code formats.

Do not run any G-Code commands by default, which disables filament insertion detection.

#event_delay: 3.0

Minimum delay between events (in seconds).

Events triggered within this time period will be ignored by default.

The default is 3 seconds.

#pause_delay: 0.5

The delay in seconds between a pause command and the execution of runout_gcode.

If in the case of OctoPrint, increasing this delay may improve the reliability of the pause. Consider increasing this delay if OctoPrint exhibits strange pause behavior.

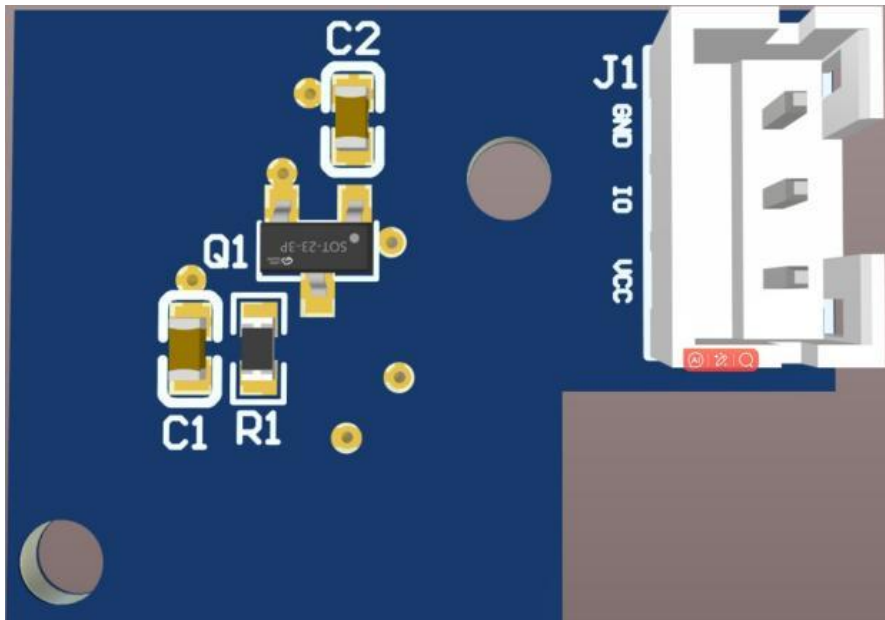
The default is 0.5 seconds.

#switch_pin:

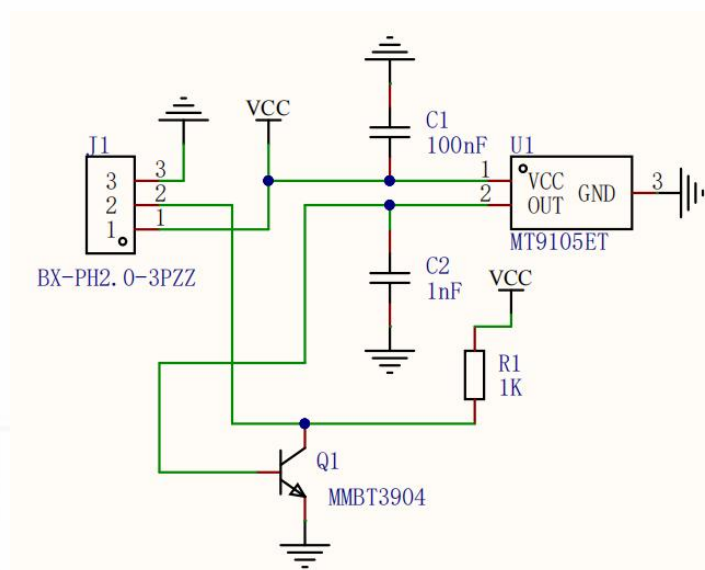
Pin connected to the detect switch.

This parameter must be provided.

3. Material Break Sensor Wire Sequence:



4. Schematic Diagram of the Material Break Sensor:



5. Safety precautions: safety matters to be noted during operation

- Pay attention to adjust the basic parameters such as current after replacing the new extruder to prevent abnormal failure caused by parameter mismatch.
- When picking up the motor, please do not subject the cable to force, which may lead to cable breakage and circuit abnormality.
- The use of CF / GF and other composite filaments are brittle and easy to break, the upper and lower ends are recommended to use Teflon tubing to guide in and out of the filaments.

Packing List (Parts and Accessories)

- Apus 2 Extruder*1
- Apus Extruder Extension Cable*1
- Apus Extruder material break sensor cable*1
- Pneumatic connector jaws*1
- Pneumatic connector snap*1
- Teflon tube*2
- Flat head socket head cap screw M3*12*3
- Flat head socket head cap screw M3*8*3

Contact Information

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