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Genmitsu 3018-PRO

Genmitsu CNC 3018-PRO Router Kit User Manual

Model: 3018-PRO

1. Introduction

Thank you for choosing the Genmitsu CNC 3018-PRO Router Kit. This compact desktop CNC machine is designed for precision carving, engraving, and milling across various materials. This manual provides essential information for safe operation, assembly, usage, and maintenance of your device.



Figure 1: Genmitsu CNC 3018-PRO Router Kit

2. Safety Instructions

Always prioritize safety when operating the CNC machine. Failure to follow these instructions may result in injury or damage to the equipment.

- **Wear Eye Protection:** Always wear safety glasses to protect your eyes from flying debris.
- **Secure Workpiece:** Ensure the material is firmly clamped to the workbed before starting any operation.
- **Keep Hands Clear:** Never touch moving parts or the cutting tool during operation.
- **Ventilation:** Operate in a well-ventilated area, especially when working with materials that produce dust or fumes.
- **Emergency Stop:** Familiarize yourself with the emergency stop procedure.
- **Power Off:** Disconnect power before performing any maintenance or adjustments.

3. Package Contents

Verify that all components are present in your package before beginning assembly. Refer to the image below for a visual guide.



Figure 2: All components included in the Genmitsu CNC 3018-PRO Router Kit.

If any parts are missing or damaged, please contact customer support.

4. Setup Guide

The Genmitsu 3018-PRO features an upgraded assembly design to simplify the setup process. Follow these steps for initial assembly and first use.

4.1 Assembly

Detailed assembly instructions are provided in the included user manual (PDF) and can often be found on the manufacturer's website. Key steps generally include:

1. Assemble the frame components.
2. Install the stepper motors and lead screws.
3. Mount the spindle assembly.
4. Connect all wiring to the control board.
5. Secure the workbed.

4.2 Software Installation

The 3018-PRO uses GRBL control, an open-source firmware. You will need a compatible software interface, such as Candle, to control the machine from your computer.

1. Download and install the appropriate GRBL control software (e.g., Candle) for your operating system.
2. Install any necessary USB drivers for communication between your computer and the CNC machine.

4.3 First Test Cut Workflow

This workflow outlines the basic steps from connecting your machine to performing your first cut.

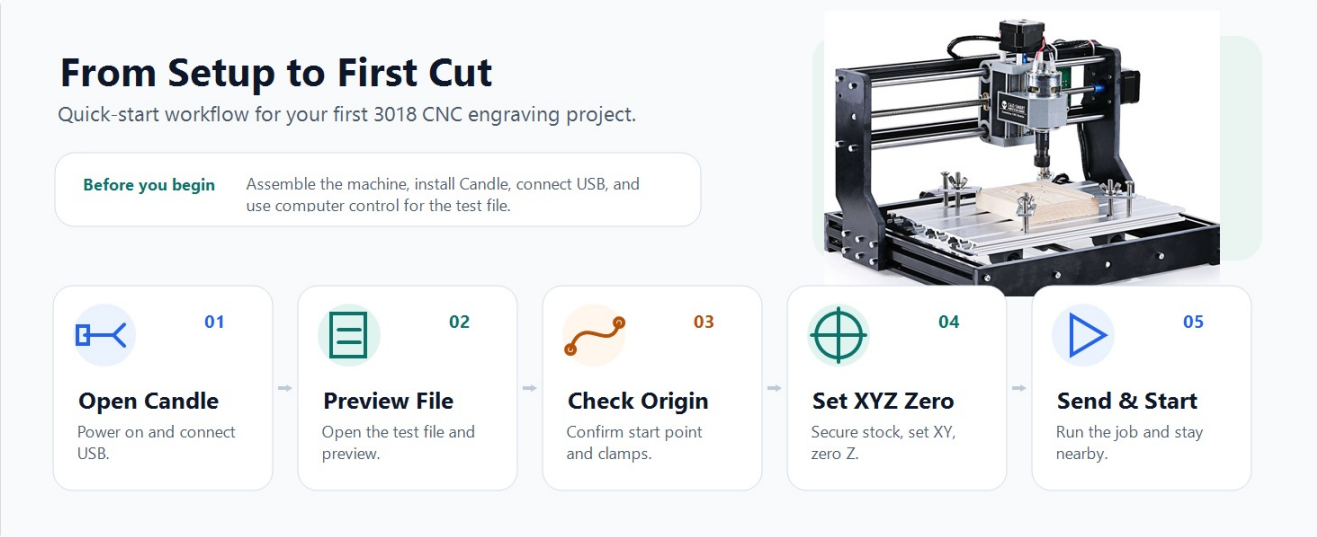


Figure 3: Visual guide for the quick-start workflow from setup to first cut using Candle software.

1. **Open Candle:** Power on the machine and connect it to your computer via USB. Launch the Candle software.
2. **Preview File:** Open your G-code file in Candle and preview the toolpath.
3. **Check Origin:** Confirm the starting point (origin) of your job and ensure your material is properly clamped.
4. **Set XYZ Zero:** Manually or automatically set the X, Y, and Z zero points on your workpiece.
5. **Send & Start:** Initiate the carving process. Stay near the machine to monitor its operation.

5. Operation

5.1 Material Compatibility

The Genmitsu 3018-PRO is capable of working with a variety of materials. The choice of cutting bit and settings will depend on the material.

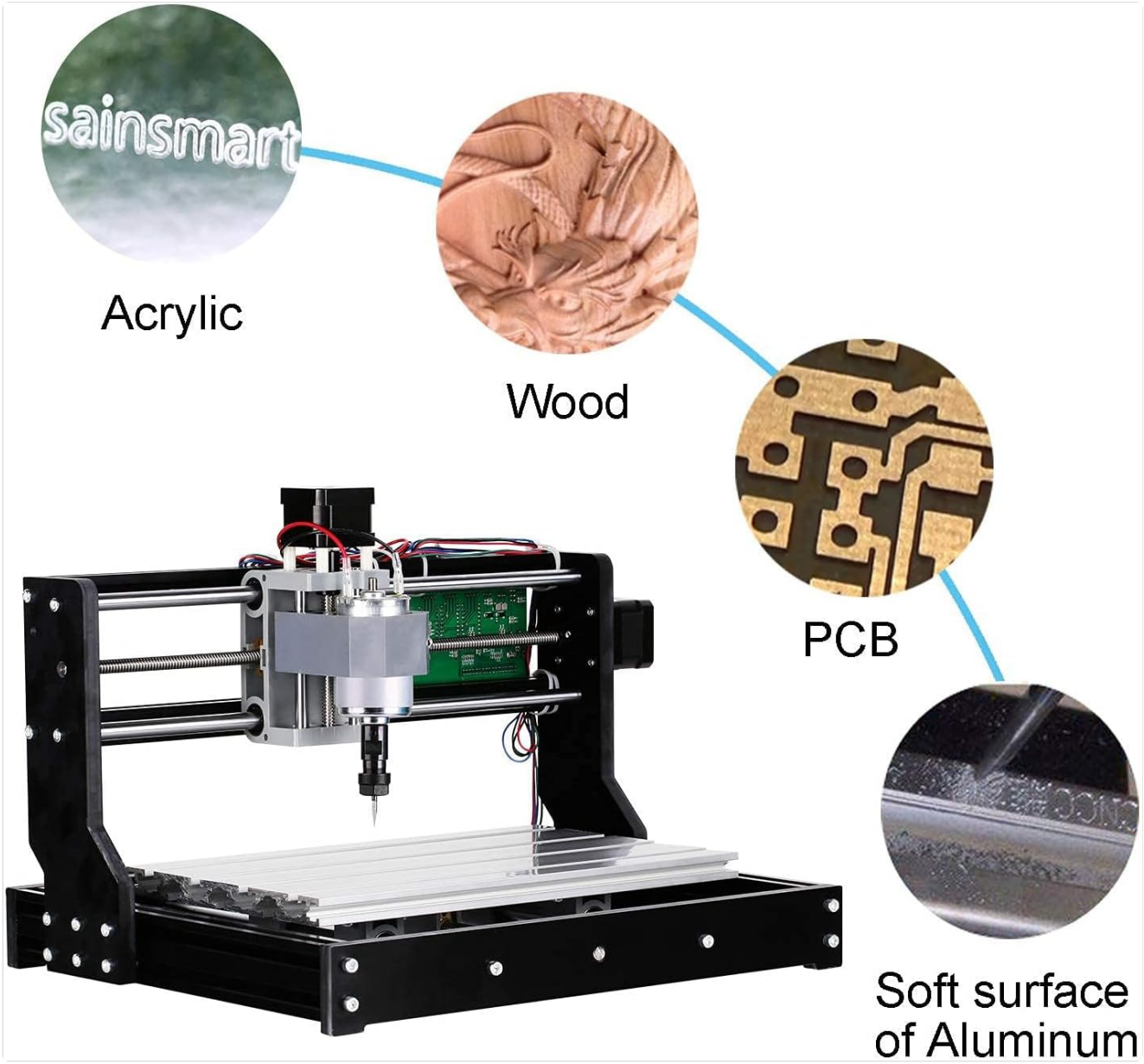


Figure 4: The CNC 3018-PRO can engrave materials such as acrylic, wood, PCB, and soft aluminum.

Common materials include:

- Wood
- Acrylic
- PVC
- Plastic
- PCB (Printed Circuit Boards)
- Soft Aluminum

Always use appropriate cutting bits and adjust feed rates and spindle speeds according to the material and desired outcome.

5.2 Spindle Operation

The spindle holds the cutting tool and rotates it at high speeds. Ensure the cutting bit is securely installed before operation.



Figure 5: Proper technique for tightening the ER11 collet to secure the cutting bit in the spindle.

To install a cutting bit:

1. Ensure the machine is powered off.
2. Loosen the ER11 collet nut using the provided wrenches.
3. Insert the cutting bit into the collet, ensuring it is seated correctly.
4. Tighten the collet nut firmly with the wrenches. Do not overtighten.

5.3 Work Area

The Genmitsu 3018-PRO offers a practical working area for various projects.

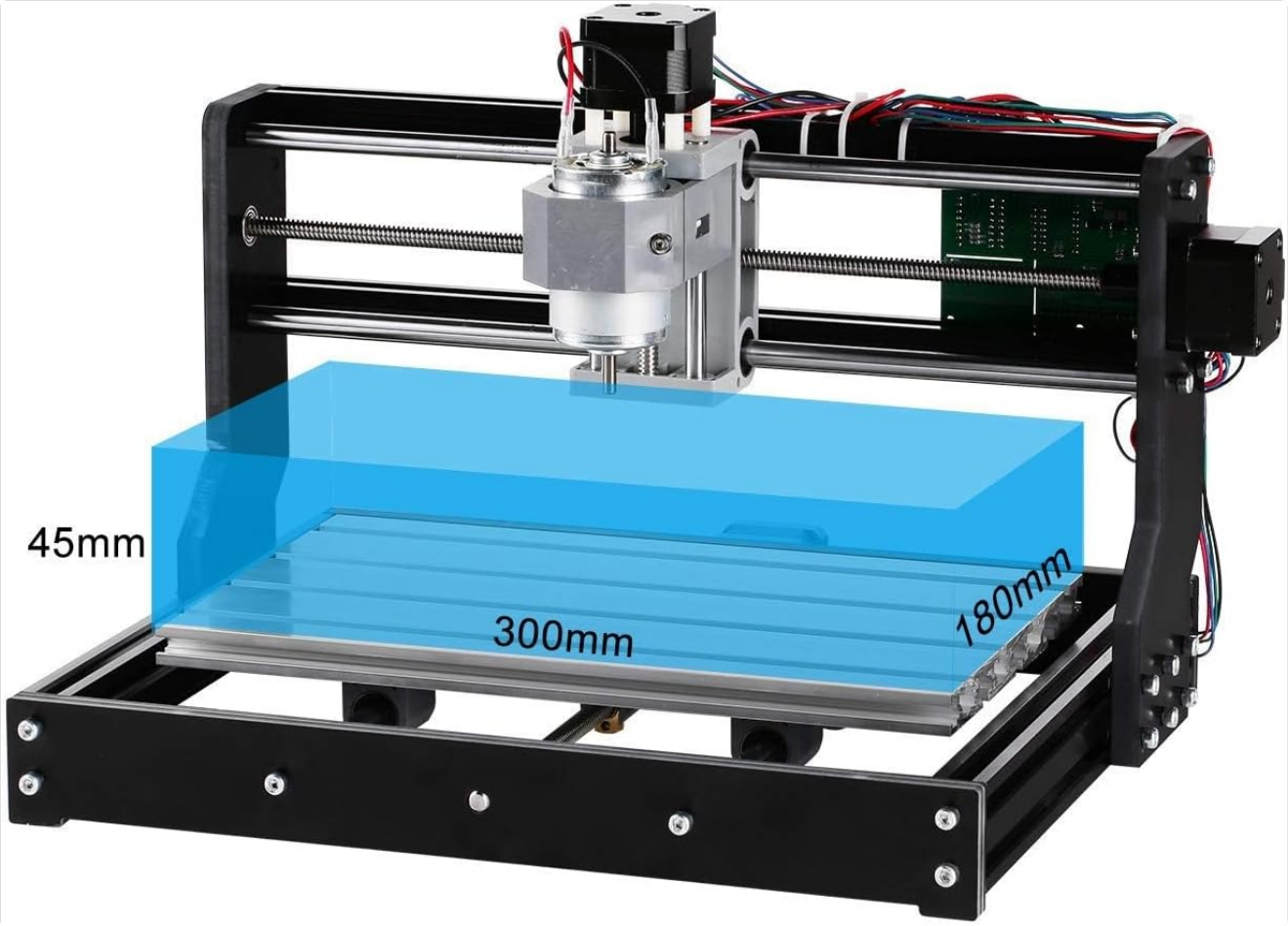


Figure 6: The XYZ working area of the Genmitsu CNC 3018-PRO, measuring 300 x 180 x 45 mm.

- **X-axis:** 300 mm
- **Y-axis:** 180 mm
- **Z-axis:** 45 mm

This area is suitable for small woodworking, engraving, PCB milling, and prototype projects.

5.4 Control Options

The 3018-PRO provides flexibility in how you control your carving operations.

- **Offline Controller:** The included offline controller allows you to perform basic CNC functions and run compatible G-code files without a computer connection. This is ideal for repetitive tasks or when a computer is not readily available.
- **Computer-Based GRBL Control:** For a more comprehensive workflow, connect the machine to a computer and use GRBL control software like Candle. This offers advanced features for design, simulation, and precise control.

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Video 1: An overview of the Genmitsu CNC 3018-PRO, demonstrating its features and capabilities in action.

6. Maintenance

Regular maintenance ensures the longevity and optimal performance of your CNC machine.

- **Cleaning:** After each use, clean the work area and lead screws to remove dust and debris. A soft brush or vacuum is recommended.
- **Lubrication:** Periodically apply a small amount of lubricant to the lead screws and linear rods to ensure

smooth movement.

- **Inspection:** Regularly inspect all connections, belts, and moving parts for wear or damage. Tighten any loose screws.
- **Bit Care:** Keep cutting bits clean and sharp. Replace dull or damaged bits to prevent poor cut quality and strain on the spindle motor.



Figure 7: A brush being used to clear wood dust from the work area of the CNC machine, demonstrating proper cleaning practice.

7. Troubleshooting

This section addresses common issues you might encounter.

- **Machine Not Responding:**
  - Check all power connections.
  - Ensure USB cable is securely connected to both the machine and computer.
  - Verify that the correct COM port is selected in your control software.
  - Restart the control software and the machine.

- **Poor Cut Quality / Inaccurate Carving:**
  - Ensure the workpiece is firmly clamped and not moving during operation.
  - Check if the cutting bit is sharp and correctly installed.
  - Verify that the feed rate and spindle speed settings are appropriate for the material.
  - Inspect lead screws and linear rods for debris or wear.
- **Stepper Motors Not Moving:**
  - Check motor wiring connections.
  - Ensure the power supply is adequate.
  - Verify that the control software is sending commands correctly.

For more detailed troubleshooting or persistent issues, refer to the official Genmitsu support resources or community forums.

8. Specifications

Feature	Specification
Brand	Genmitsu
Model Number	3018-PRO
Working Area (XYZ)	300 x 180 x 45 mm
Power Source	Corded Electric
Voltage	24 volts
Horsepower	120 watts
Maximum Rotational Speed	20000 rpm
Amperage	1.3 A
Item Weight	15.3 pounds
Control Software	GRBL (e.g., Candle)
Included Components	Wood Carving Milling Engraving Machine

9. Warranty and Support

For warranty information, technical support, or to purchase replacement parts, please visit the official Genmitsu website or contact their customer service directly. Keep your purchase receipt as proof of purchase.
You can find more information and support resources at theGenmitsu Store on Amazon.

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