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PerGar NK105G3

PerGar NK105G3 3-Axis Manual CNC Motion Controller System
User Manual

Model: NK105G3 | Brand: PerGar

1. INTRODUCTION

The PerGar NK105G3 is a robust 3-axis manual CNC motion controller designed for precise and efficient control of CNC router and engraving machines. It offers advanced features such as multi-stage spindle control and flexible tool setting options, making it suitable for a wide range of applications including cutting and engraving on stone, wood, and metal.



Figure 1.1: The PerGar NK105G3 CNC Motion Controller and its connecting cable.

2. KEY FEATURES

- **Accurate and Smooth Motion Control:** Ensures precise and seamless movement of the X, Y, and Z axes for accurate cutting and engraving results.
- **Versatile Spindle Control:** Features 8-speed control, allowing easy adjustment of spindle speed to accommodate different materials and cutting requirements.
- **Enhanced Tooling Options:** Supports straight row tool arrangement for easy access to various cutting tools, improving productivity and efficiency.
- **Flexible Tool Setting Modes:** Offers multiple tool setting options including fixed tool setting, floating tool setting, first tool setting, or tool change tool setting to meet specific project needs.
- **Wide Application Range:** Ideal for cutting and engraving tasks on stone, wood, and metal, providing versatility for various project requirements.

CNC HAND CONTROLLER

The NK105G3 CNC motion controller ensures accurate and smooth movement of X, Y, and Z axes for accurate cutting and engraving.



Figure 2.1: Visual representation of the NK105G3's key capabilities, including 8-speed spindle control and versatile applications.

3. PACKAGE CONTENTS

Upon opening the package, verify that all components are present and undamaged:

- 1 x PerGar NK105G3 CNC Manual Controller

Note: Additional cables or accessories may be included depending on the specific product variant or bundle.

4. SPECIFICATIONS

Attribute	Detail
Item Type	CNC Manual Controller
Axes Controlled	3 axes (X, Y, Z)

Attribute	Detail
Spindle Control	8-speed multi-segment
Tool Knife Setting Type	Supports direct arrangement of tool knife
Knife Setting Mode	Supports automatic and manual knife setting
Tool Setting Type Options	Fixed tool setting, floating tool setting, first tool setting, tool change tool setting
Manufacturer	PerGar
Part Number	PerGar69ogd2rvsk
Item Weight	2.35 pounds
Package Dimensions	12.2 x 9.06 x 7.87 inches
Country of Origin	China
Item Model Number	PerGar69ogd2rvsk
Power Source	AC/DC

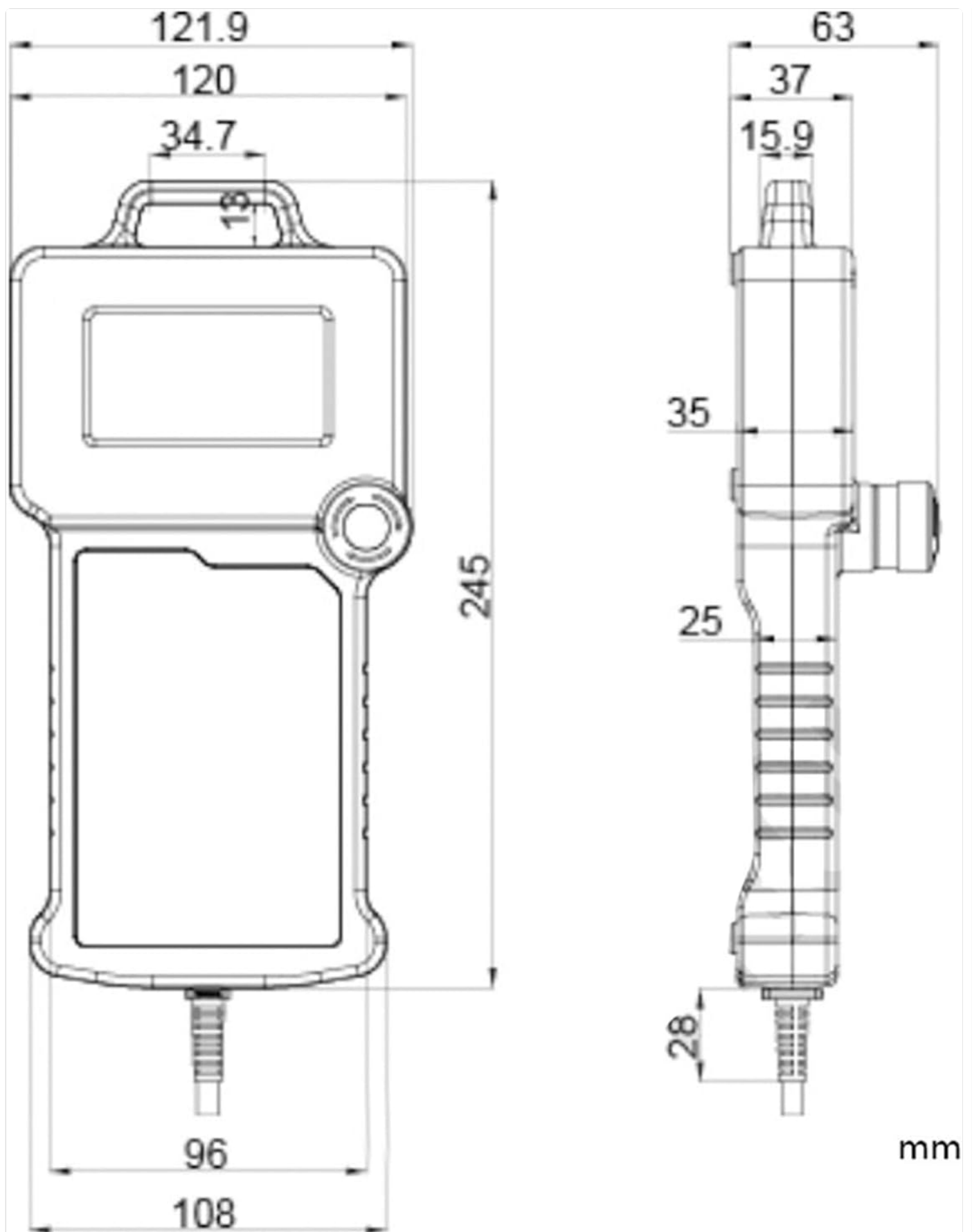


Figure 4.1: Dimensional drawing of the NK105G3 controller, showing key measurements in millimeters.

5. SETUP INSTRUCTIONS

Before operating the NK105G3 controller, ensure it is properly connected to your CNC machine. Follow these general steps:

1. **Power Off:** Ensure your CNC machine and the controller are powered off before making any connections.
2. **Connect Cable:** Connect the provided communication cable from the NK105G3 controller to the designated port on your CNC machine's control board. Ensure the connection is secure.
3. **Power On:** Once all connections are secure, power on your CNC machine first, then the NK105G3 controller.
4. **Initial Check:** Observe the controller's display for any error messages or indicators. Refer to your CNC machine's manual for specific initial setup procedures if required.



Figure 5.1: The NK105G3 controller showing its integrated cable for connection to a CNC machine.

6. OPERATING INSTRUCTIONS

The NK105G3 controller provides intuitive controls for manual operation of your CNC machine. Familiarize yourself with the button layout and display.

6.1. Axis Movement

- Use the directional buttons (X+, X-, Y+, Y-, Z+, Z-) to manually move the corresponding axes.
- Adjust the step size or jog speed using the dedicated buttons or menu options on the controller's display.

6.2. Spindle Speed Control

- The controller supports 8-speed multi-segment spindle control. Refer to your CNC machine's documentation for how these speeds map to actual RPMs.
- Use the designated buttons (e.g., K1, K2, or menu navigation) to select the desired spindle speed level.

6.3. Tool Setting

The NK105G3 offers various tool setting modes:

- **Fixed Tool Setting:** For setting tool length at a predefined position.
- **Floating Tool Setting:** Allows for more flexible tool length measurement.
- **First Tool Setting:** Used for initial tool length calibration.
- **Tool Change Tool Setting:** For recalibrating after a tool change.

Consult your CNC machine's software and the controller's display for specific instructions on initiating and completing tool setting procedures.



Figure 6.1: The NK105G3 controller positioned in a typical CNC workshop setting, ready for operation.



Figure 6.2: The NK105G3 controller shown with a CNC machine actively performing an operation, demonstrating its role in controlling the process.

7. MAINTENANCE

Proper maintenance ensures the longevity and reliable performance of your NK105G3 controller.

- **Cleaning:** Regularly wipe the controller's surface with a soft, dry cloth. Avoid using abrasive cleaners or solvents that could damage the casing or screen.
- **Storage:** When not in use, store the controller in a clean, dry environment, away from direct sunlight, excessive dust, and extreme temperatures.
- **Cable Inspection:** Periodically inspect the connecting cable for any signs of wear, cuts, or damage. Replace if necessary to prevent connectivity issues.

8. TROUBLESHOOTING

This section addresses common issues you might encounter. For more complex problems, contact customer support.

Problem	Possible Cause	Solution
Controller not powering on.	No power supply; loose cable connection.	Ensure the power source is active and all cables are securely connected.
No response from CNC machine.	Incorrect connection; machine not powered on; software issue.	Verify cable connections. Ensure CNC machine is powered on and ready. Check CNC software settings.
Axis movement is erratic or incorrect.	Interference; mechanical issue with CNC machine; incorrect settings.	Check for electromagnetic interference. Inspect CNC machine's mechanical components. Verify controller settings for axis movement.
Spindle speed not changing.	Incorrect spindle control setting; machine not configured for 8-speed control.	Ensure the correct spindle speed level is selected on the controller. Consult your CNC machine's manual for spindle configuration.

9. WARRANTY AND SUPPORT

For warranty information, technical support, or service inquiries regarding your PerGar NK105G3 CNC Motion Controller, please refer to the purchase documentation or contact the seller directly. Keep your proof of purchase for warranty claims. You may also visit the official PerGar store on Amazon for additional product information and support resources [PerGar Store](#)

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