

SHIHUANI SMC5-5-N-N

SHIHUANI SMC5-5-N-N Standalone CNC Motion Controller User Manual

1. INTRODUCTION

This manual provides essential information for the proper installation, operation, and maintenance of the SHIHUANI SMC5-5-N-N Standalone CNC Motion Controller. This device is designed to provide high control precision for both stepper and servo motors in various CNC applications. Please read this manual thoroughly before using the controller to ensure safe and efficient operation.

2. PRODUCT OVERVIEW

The SMC5-5-N-N is a versatile standalone motion controller featuring a 7-inch large screen and a 500KHz pulse output, capable of controlling up to 5 axes. It is engineered to achieve high-precision machining by utilizing advanced digital control technology to precisely manage the position and speed of the machining process. This ensures accuracy and consistency in machining dimensions, with further improvements possible through error compensation functions.

The controller is suitable for a wide range of CNC machines, including milling machines, lathes, CNC routers, and pick-and-place systems. Its humanized interface design, supporting touch screen or keyboard input, allows for quick setup and intuitive parameter programming. Advanced models may also support graphical programming, simplifying complex operations.



Figure 2.1: SHIHUANI SMC5-5-N-N Standalone CNC Motion Controller.



Figure 2.2: Controller with optional handwheel accessory.

3. SETUP

Proper setup is crucial for the optimal performance and safety of your CNC system. This section outlines general steps for connecting the SMC5-5-N-N controller.

3.1. Unpacking and Inspection

- Carefully unpack all components and verify that all items listed in the packing list are present.
- Inspect the controller and accessories for any signs of physical damage incurred during shipping. Report any damage immediately to your supplier.

3.2. Power Connection

- Ensure the power supply meets the specifications required by the controller (refer to technical specifications).
- Connect the power cable securely to the controller and to a grounded power outlet.

3.3. Motor and Limit Switch Connections

- Connect your stepper or servo motors to the corresponding axis outputs on the controller. Ensure correct wiring for each axis (X, Y, Z, A, B).
- Connect limit switches, emergency stop buttons, and other safety devices to the designated input terminals.

3.4. Optional Handwheel Connection

If using an optional handwheel, connect it to the designated port on the controller. This allows for manual control of axis movement.



Figure 3.1: Optional Handwheel and connection cable.

4. OPERATING INSTRUCTIONS

The SMC5-5-N-N controller is designed for convenient operation with its intuitive interface. Follow these general steps to operate your CNC machine.

4.1. Power On and Initialization

- Ensure all connections are secure, then power on the controller.
- The system will perform an initialization sequence. Wait for the main interface to load.

4.2. Program Loading

- Use the USB port or other available methods to load your G-code program files onto the controller.
- Navigate through the file management system on the screen to select the desired program.

4.3. Setting Parameters

- Access the parameter settings menu to configure machining parameters such as feed rates, spindle speed, and tool offsets.
- Utilize the touch screen or keyboard for input.

4.4. Manual Control and Homing

- Use the manual control buttons or the optional handwheel to jog axes and set work offsets.
- Perform the homing procedure for all axes to establish machine coordinates.

4.5. Starting Operation

- Once the program is loaded and parameters are set, initiate the machining process.
- Monitor the machining process on the screen and be prepared to use the emergency stop if necessary.

5. MAINTENANCE

Regular maintenance ensures the longevity and reliable performance of your SMC5-5-N-N controller.

- **Cleaning:** Keep the controller's screen and buttons clean and free from dust, debris, and cutting fluids. Use a soft, dry cloth for cleaning. Avoid abrasive cleaners or solvents.
- **Connection Checks:** Periodically inspect all cable connections (power, motor, limit switches, USB) to ensure they are secure and free from damage. Loose connections can lead to erratic behavior or system failure.
- **Software Updates:** Check the manufacturer's website for any available firmware or software updates. Follow the provided instructions carefully for any update procedures.
- **Environmental Conditions:** Operate the controller within its specified environmental conditions (temperature, humidity) to prevent damage.

6. TROUBLESHOOTING

This section provides solutions to common issues you might encounter with the SMC5-5-N-N controller.

6.1. Controller Does Not Power On

- **Check Power Supply:** Ensure the power cable is securely connected and the power outlet is functional. Verify the power supply voltage matches the controller's requirements.
- **Inspect Fuses:** If applicable, check for blown fuses within the controller or its power supply.

6.2. Motors Not Responding

- **Verify Motor Connections:** Ensure all motor cables are correctly and securely connected to the controller and the motors.
- **Check Driver Status:** Confirm that motor drivers are powered on and not indicating any error states.
- **Review Parameters:** Check motor configuration parameters in the controller settings, such as steps per unit, direction, and acceleration.

6.3. Program Errors or Unexpected Behavior

- **G-code Verification:** Review your G-code program for syntax errors or logical inconsistencies.
- **Limit Switch Activation:** Ensure limit switches are not inadvertently triggered, which can halt machine movement.
- **Emergency Stop:** Verify that the emergency stop button is not engaged.

7. SPECIFICATIONS

Feature	Specification
Model Number	SMC5-5-N-N
Application	Milling Machine, Lathes, CNC Routers, Pick&Place
Control Axes	Up to 5 axes (4-axis and 5-axis configurations)
Pulse Output Frequency	500KHz
Screen Size	7 Inch
Manufacturer	SHIHUANI
Item Weight	1.76 pounds (0.8 kg)
Package Dimensions	1.18 x 0.79 x 0.39 inches (3 x 2 x 1 cm)
Assembly Required	No
Number of Pieces	1 (Controller unit)

8. WARRANTY AND SUPPORT

Warranty information for the SHIHUANI SMC5-5-N-N Standalone CNC Motion Controller is not provided within this manual. Please refer to the product packaging, purchase documentation, or contact the manufacturer directly for details regarding warranty coverage and terms.

For technical support, troubleshooting assistance beyond what is covered in this manual, or inquiries about replacement parts, please contact SHIHUANI customer service through their official website or the retailer from whom the product was purchased.