FORYON SMC5-5-N-N

FORYON Maxgeek SMC5-5-N-N 5-Axis CNC Offline Controller User Manual

1. Introduction

This manual provides detailed instructions for the installation, operation, and maintenance of the FORYON Maxgeek SMC5-5-N-N 5-Axis CNC Offline Controller. This high-performance 32-bit controller is designed for various CNC machines, including lathes, CNC routers, pick-and-place machines, and milling machines.
The controller manages the human-computer interface and code analysis, while an integrated FPGA provides the underlying algorithms and generates control pulses. This architecture ensures reliable control and user-friendly operation. Its internal operating system is designed for efficiency and precision.

2. Product Overview

The SMC5-5-N-N controller features a 7-inch LCD for clear display and a comprehensive keypad for input and control. It supports 5-axis motion control, enabling complex machining operations with high precision.

2.1 Front Panel

The front panel includes the 7-inch LCD, a USB port for program loading, and a keypad with alphanumeric and function keys for intuitive operation. Dedicated buttons for axis movement (X, Y, Z, A, B) and other functions are also present.



Figure 1: Front view of the FORYON Maxgeek SMC5-5-N-N 5-Axis CNC Offline Controller, showing the 7-inch LCD, USB port, and control keypad.

2.2 Rear Panel and Connections

The rear panel provides various input and output ports for connecting to your CNC machine's motors, sensors, and other peripherals. These include general-purpose inputs (IN1-IN22), outputs (OUT1-OUT8), PWM, 0-10V analog output, and dedicated axis control connections.

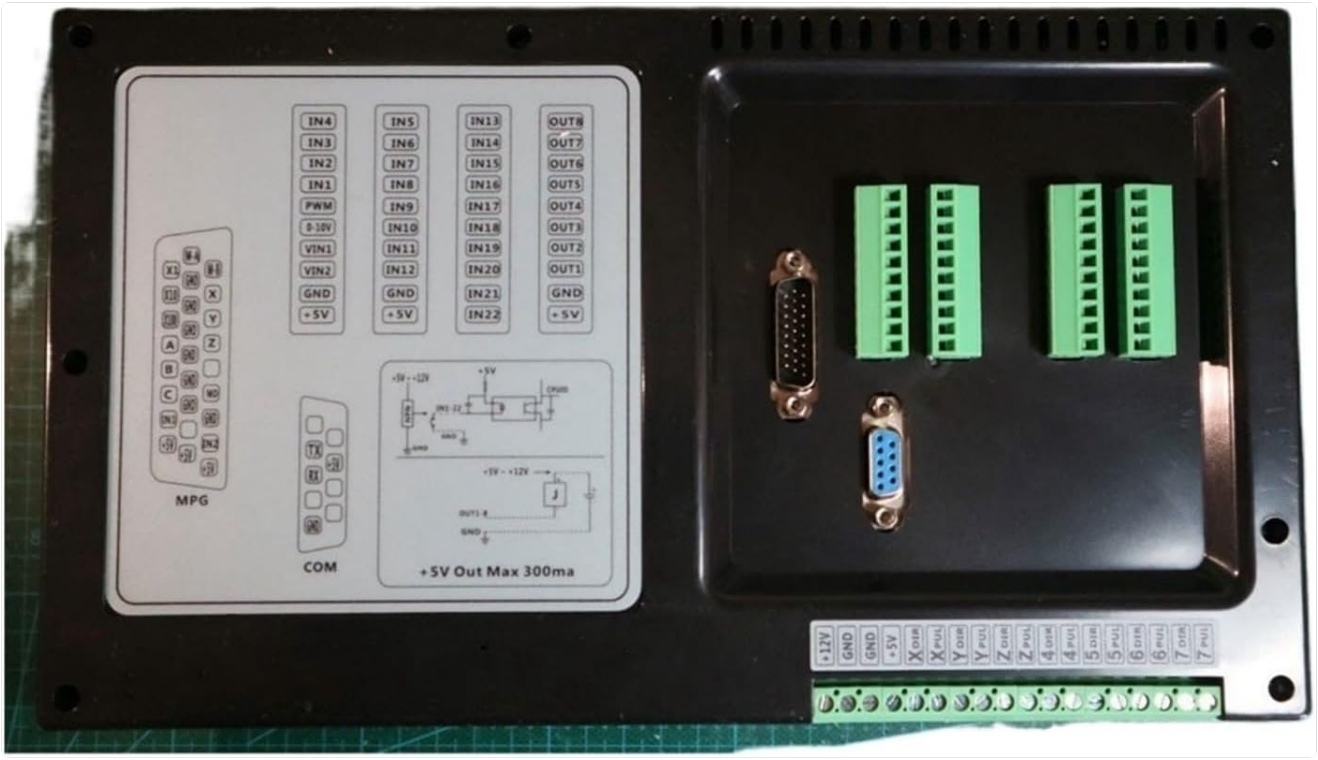


Figure 2: Rear view of the FORYON Maxgeek SMC5-5-N-N 5-Axis CNC Offline Controller, illustrating the various input, output, and motor control ports.

3. Setup

Proper setup is crucial for the safe and effective operation of your CNC machine with the SMC5-5-N-N controller. Always ensure the power is off before making any connections.

3.1 Power Supply Connection

1. Connect the appropriate DC power supply (typically 12V-24V, as specified in the product documentation) to the designated power input terminals on the rear panel.
2. Ensure correct polarity (+ and -) to prevent damage to the controller.

3.2 Motor and Driver Connections

Connect your stepper or servo motor drivers to the corresponding axis output terminals (X, Y, Z, A, B) on the rear panel. Each axis typically requires connections for PUL (pulse), DIR (direction), and ENA (enable).

- **PUL/DIR/ENA:** Connect these signals from the controller to the respective inputs on your motor drivers.
- **Ground:** Ensure a common ground connection between the controller and motor drivers.

3.3 Input/Output (I/O) Wiring

Connect limit switches, emergency stop buttons, and other sensors to the input terminals (IN1-IN22). Connect relays or other controlled devices to the output terminals (OUT1-OUT8) as required by your machine configuration.

- Refer to the wiring diagram provided with your specific CNC machine for detailed I/O connections.
- Ensure all connections are secure and properly insulated.

4. Operating Instructions

The SMC5-5-N-N controller features a humanized interface designed for quick learning and intuitive operation.

4.1 Power On/Off

1. **Power On:** Ensure all connections are correct, then apply power to the controller. The 7-inch LCD will display the boot screen.
2. **Power Off:** Safely shut down the controller through the system menu if available, then disconnect the power supply.

4.2 Interface Navigation

Use the keypad to navigate through menus and input commands. The arrow keys typically control cursor movement, while 'OK' or 'Enter' confirms selections. 'ESC' or 'Back' exits menus.

4.3 Program Loading

G-code programs can be loaded via the USB port. Insert a USB flash drive containing your G-code files into the USB port on the front panel. Navigate to the 'File Management' or 'Program Load' menu to select and load your desired program.

4.4 Parameter Setting

Access the 'Settings' or 'Parameters' menu to adjust various machining parameters, such as feed rates, spindle speed, tool offsets, and machine limits. Input values using the numeric keypad.

4.5 Manual Control (Jogging)

Use the dedicated X+, X-, Y+, Y-, Z+, Z-, A+, A-, B+, B- keys on the keypad to manually move the machine axes. Adjust jog speed as needed through the interface.

4.6 Starting and Stopping Operations

- **Start:** Press the 'Start' or 'Run' button to begin program execution.
- **Pause:** Press the 'Pause' button to temporarily halt the operation.
- **Stop:** Press the 'Stop' or 'Emergency Stop' button to immediately cease all machine movement.

5. Maintenance

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

- **Cleaning:** Keep the controller's exterior, especially the screen and keypad, clean and free of dust and debris. Use a soft, dry cloth. Avoid abrasive cleaners or solvents.
- **Environmental Conditions:** Operate the controller within recommended temperature and humidity ranges. Avoid exposure to direct sunlight, excessive moisture, or corrosive environments.
- **Connection Checks:** Periodically inspect all wiring connections on the rear panel to ensure they are secure and free from corrosion or damage.
- **Firmware Updates:** Check the manufacturer's website for any available firmware updates. Follow the provided instructions carefully for any update procedures.

6. Troubleshooting

This section addresses common issues you might encounter with the SMC5-5-N-N controller.

6.1 Controller Not Powering On

- **Check Power Supply:** Verify that the power supply is connected correctly and providing the specified voltage (e.g., 12V-24V DC).
- **Power Cable:** Ensure the power cable is not damaged and is securely plugged in.

6.2 Axis Movement Issues

- **Motor Driver Connections:** Confirm that the PUL, DIR, and ENA signals are correctly wired between the controller and motor drivers for the affected axis.
- **Motor Driver Power:** Ensure motor drivers are powered correctly and enabled.
- **Parameters:** Check axis-related parameters in the controller settings (e.g., steps per unit, maximum speed).

6.3 Program Loading Errors

- **USB Drive Format:** Ensure the USB flash drive is formatted correctly (e.g., FAT32).
- **File Format:** Verify that the G-code files are in a compatible format.
- **USB Port:** Try a different USB port or a different USB drive.

6.4 Display Problems

- **Brightness/Contrast:** Check display settings if available.
- **Restart:** Power cycle the controller.

If issues persist, refer to the detailed troubleshooting guide on the manufacturer's website or contact technical

support.

7. Specifications

- **Model Number:** SMC5-5-N-N
- **Axes Supported:** 5-Axis
- **Processor:** High Performance 32-Bit CPU
- **Display:** 7-inch LCD
- **Control Type:** Offline CNC Motion Controller
- **Input/Output:** Multiple digital inputs (IN1-IN22), digital outputs (OUT1-OUT8), PWM, 0-10V analog output
- **Connectivity:** USB port for program loading
- **Package Dimensions:** 1.18 x 0.79 x 0.39 inches
- **Item Weight:** 6.61 pounds
- **Manufacturer:** FORYON
- **Assembly Required:** No
- **Number of Pieces:** 1

8. Warranty and Support

For warranty information, technical support, or service inquiries regarding your FORYON Maxgeek SMC5-5-N-N 5-Axis CNC Offline Controller, please refer to your purchase documentation or contact FORYON customer support directly. Contact details are typically available on the manufacturer's official website or through your point of purchase.

Ask a question about this manual

Ask about setup, troubleshooting, compatibility, parts, safety, or missing instructions. Manuals+ will review the question and use this page's manual context to help answer it.

Name

Anonymous

Email

you@example.com

After a successful submission, we securely hash the supplied account or form email before sending it to Microsoft Advertising for conversion attribution. Privacy details.

Question

Example: How do I reset this device or fix this error?

Details

Model number, symptoms, what you tried, or the section of the manual you are using.

Submit question