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DAVITU NVCMV2.1

DAVITU NVCMV2.1 CNC Motion Controller User Manual

Model: NVCMV2.1 | Brand: DAVITU

Introduction | Package Contents | Product Overview | Specifications | Setup | Operating | Maintenance | Troubleshooting | Warranty & Support

1. Introduction

The DAVITU NVCMV2.1 is a high-performance 3, 4, 5, or 6-axis motion control card designed for CNC applications. It communicates with your computer via a USB port, providing precise control for stepper motor systems. This manual provides detailed instructions for the setup, operation, and maintenance of your NVCMV2.1 controller.

2. Package Contents

Please verify that all items listed below are included in your package:

- NVCMV2.1 Motion Control Card (1 unit)
- USB Signal Cable (1 unit)
- Software CD (1 unit)
- 75W 24V DC Power Supply (1 unit)

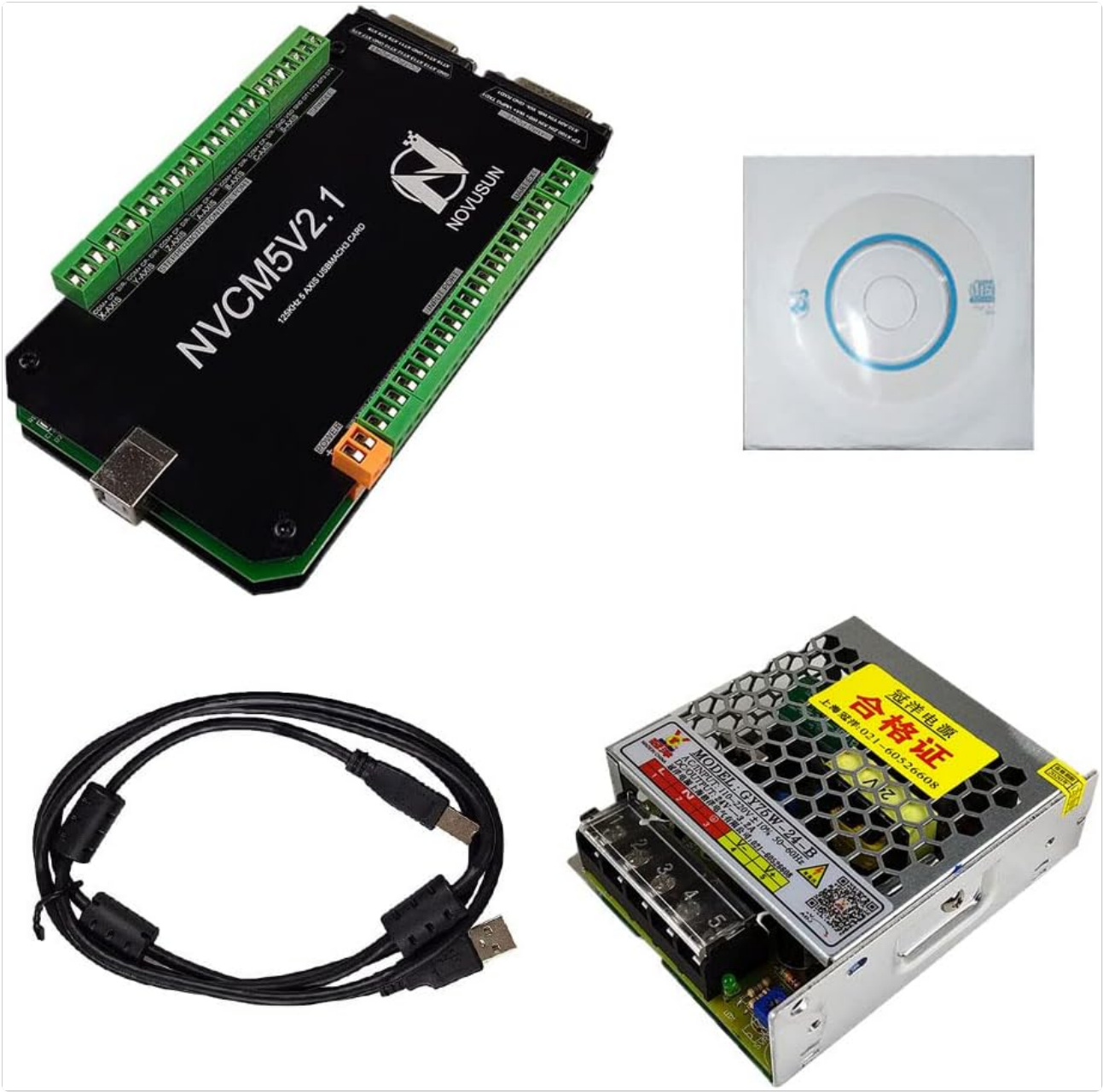

Figure 2-1: Complete package contents of the DAVITU NVCMV2.1 kit.

3. Product Overview and Features

3.1 Key Features

The NVCMV2.1 motion controller is built with an ARM motion control chip and offers robust performance for various CNC applications:

- USB Connectivity: Supports communication with a computer via USB.
- Isolated Inputs: 16 photoelectric isolated input interfaces for enhanced safety and noise immunity.
- Isolated Outputs: 16 photoelectric isolated output interfaces.
- Spindle Control: 1 port 0-10V analog output interface for spindle speed control, convertible to PWM output.
- Axis Support: Capable of supporting up to 6 axis stepper systems.
- High Pulse Output: Provides a maximum pulse output of 125KHz for each axis.
- Power Input: Main device requires 12V-32V DC power supply input, with current higher than 1A.

3.2 Interface Overview



Figure 3-1: Detailed view of the NVCMV2.1 control card interfaces, including power, input, output, and spindle connections.

The control card features clearly labeled terminals for power input, photoelectric isolated inputs (INP1-INP16), photoelectric isolated outputs (OUT1-OUT16), stepper motor control (X, Y, Z, A, B, C axes), and spindle control. Additionally, it includes USB and other communication ports.

4. Technical Specifications

Parameter	Value
Model Number	NVCMV2.1
Supported Axes	Up to 6 axes (Stepper Motor)
Max Pulse Output Frequency	125 KHz per axis
Input Interfaces	16 photoelectric isolated inputs
Output Interfaces	16 photoelectric isolated outputs

Parameter	Value
Spindle Output	0-10V analog (convertible to PWM)
Main Device Power Supply	12V-32V DC (Current > 1A)
Overall Dimensions (L x W x H)	150mm x 84mm x 20mm
Bottom Install Size	125.5mm x 71.5mm
Communication Interface	USB
Certification	NONE (as per product data)

5. Setup and Installation

5.1 Physical Installation

The NVCMV2.1 motion controller features a sealed open structure with four setting holes at the bottom for secure mounting. It is recommended to fix the controller inside a cabinet using two 3mm diameter holes.



Figure 5-1: NVCMV2.1 controller showing mounting points and overall dimensions.

5.2 Power Connection

Connect the provided 75W 24V DC power supply to the main device. Ensure the power supply input is within the 12V-32V DC range and provides a current higher than 1A for stable operation.



Figure 5-2: The 75W 24V DC power supply included with the kit.

5.3 USB Connection

Use the provided USB signal cable to connect the NVCMV2.1 control card to your computer. This connection facilitates communication between the controller and your CNC software.

5.4 Software Installation

Insert the included software CD into your computer's CD-ROM drive. Follow the on-screen instructions to install the necessary drivers and control software for the NVCMV2.1. Ensure your operating system is compatible with the provided software.

6. Operating Instructions

Once the physical installation and software setup are complete, you can begin operating your CNC system with the NVCMV2.1 controller. Refer to your specific CNC software's user manual for detailed instructions on configuring axes, setting up tool paths, and initiating machining operations.

- **Power On:** Ensure all connections are secure before applying power to the controller and power supply.
- **Software Launch:** Open your CNC control software (e.g., Mach3) on your computer.
- **Configuration:** Configure the software to recognize the NVCMV2.1 controller and set up the motor parameters, pulse settings, and I/O assignments according to your CNC machine's requirements.

- **Axis Movement:** Test individual axis movements to ensure proper communication and motor response.
- **Spindle Control:** Verify spindle speed control functionality if applicable to your setup.
- **Emergency Stop:** Always ensure your emergency stop system is functional before starting any operation.

7. Maintenance

To ensure the longevity and optimal performance of your DAVITU NVCMV2.1 controller, follow these general maintenance guidelines:

- **Cleaning:** Periodically clean the controller and its connections with a soft, dry cloth. Avoid using liquid cleaners or solvents.
- **Environment:** Operate the controller in a clean, dry, and well-ventilated environment. Avoid excessive dust, moisture, and extreme temperatures.
- **Connections:** Regularly check all cable connections to ensure they are secure and free from damage.
- **Software Updates:** Keep your CNC control software and drivers updated to the latest versions recommended by the manufacturer.

8. Troubleshooting

If you encounter issues with your NVCMV2.1 controller, consider the following common troubleshooting steps:

- **No Power:**
  - Check if the power supply is correctly connected and receiving power.
  - Verify the power supply output voltage (12V-32V DC).
- **No Communication with PC:**
  - Ensure the USB cable is securely connected to both the controller and the PC.
  - Check if the USB drivers are correctly installed (refer to the software CD).
  - Try a different USB port on your computer.
  - Restart your computer and the controller.
- **Motors Not Moving:**
  - Verify motor wiring connections to the controller.
  - Check motor driver settings in your CNC software.
  - Ensure the power supply for the motors is adequate.
  - Confirm that the emergency stop is not engaged.
- **Erratic Behavior:**
  - Check for electrical noise or interference in the environment.
  - Ensure proper grounding of your CNC machine and components.

- Verify that all cables are properly shielded and routed away from power lines.

For persistent issues, consult the documentation for your CNC software or contact DAVITU customer support.

9. Warranty and Support

For information regarding product warranty, technical support, or service, please refer to the documentation provided with your purchase or visit the official DAVITU website. Keep your purchase receipt as proof of purchase for any warranty claims.

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

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Submit question

Answered questions about this manual

I purchased the DAVITU NVCMV2.1 6-Axis CNC Motion Control Card a few years ago but lost the installation disc. How can I install the software and drivers?

Since you have lost the original software CD for your DAVITU NVCMV2.1, you will need to obtain the drivers and configuration files (typically for Mach3 software) to get the card working again. The NVCMV2.1...

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