TJGOPKUJ MKS Gen L V1.0

TJGOPKUJ MKS Gen L V1.0 Motherboard User Manual for Artillery Sidewinder X1 and Genius 3D Printers

Model: MKS Gen L V1.0 | Brand: TJGOPKUJ

1. Introduction

This manual provides essential information for the installation, operation, and maintenance of the TJGOPKUJ MKS Gen L V1.0 motherboard. This motherboard is designed as a replacement or upgrade component for specific 3D printer models, including the Artillery Sidewinder X1 and Artillery Genius. Please read this manual thoroughly before proceeding with any installation or configuration to ensure proper functionality and safety.

2. Product Overview

The MKS Gen L V1.0 is a versatile 3D printer control board, integrating the main control chip and various interfaces required for 3D printing operations. It is known for its stability and compatibility with a wide range of stepper motor drivers. This board serves as the central processing unit for your 3D printer, managing all movements, heating elements, and communication.

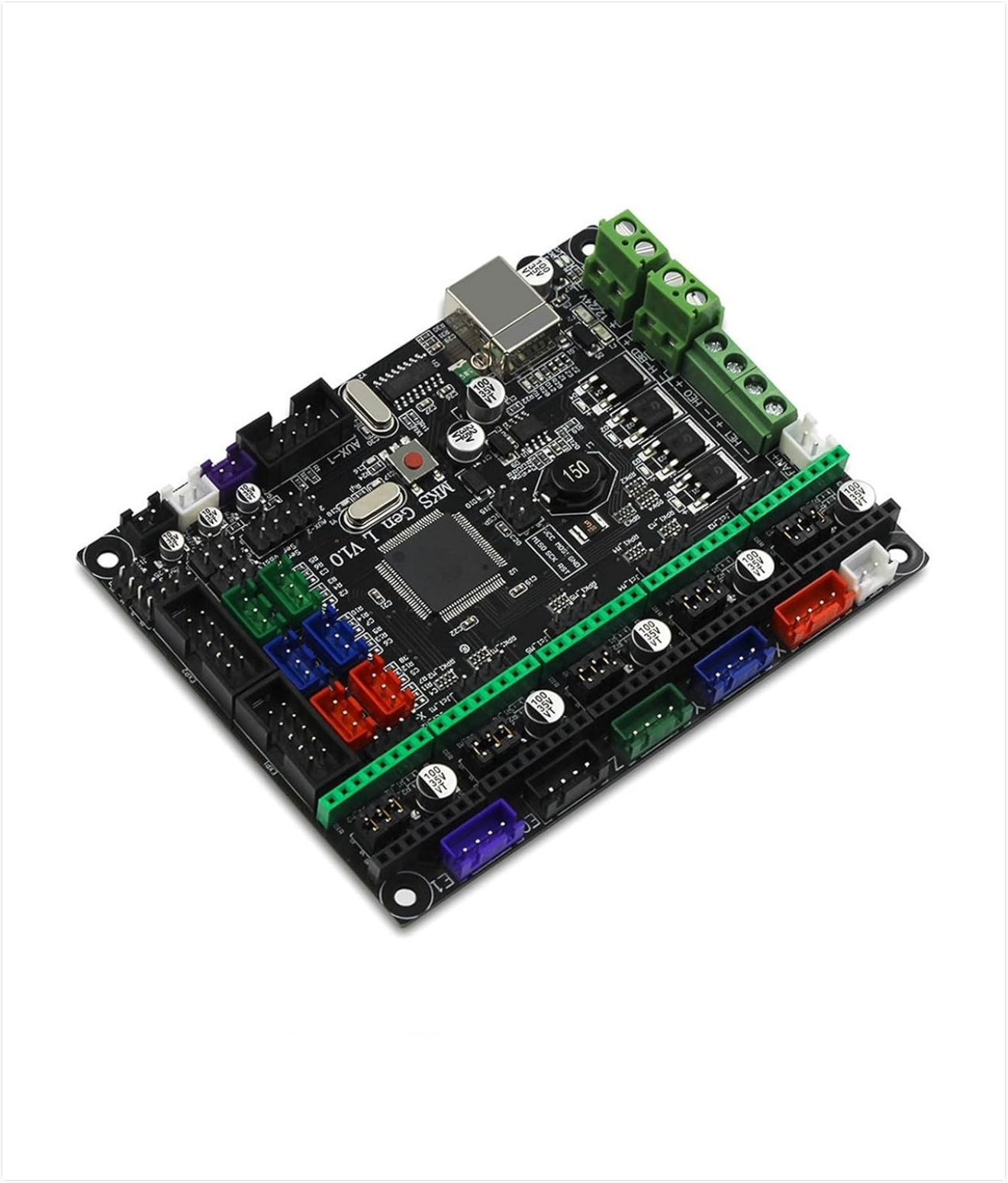


Figure 2.1: Top-down view of the TJGOPKUJ MKS Gen L V1.0 Motherboard, showing various connectors and the main chip.

3. Compatibility

The TJGOPKUJ MKS Gen L V1.0 motherboard is compatible with the following 3D printer models:

- Artillery Sidewinder X1
- Artillery Genius
- Artillery Genius Pro
- Artillery SW-X2

This motherboard is designed to be a direct replacement or upgrade for the original mainboard in these specified

models. Ensure that the firmware flashed onto the board is appropriate for your specific printer model.

4. Features

- High-quality construction for reliability and durability.
- Designed for Artillery Sidewinder X1 and Genius 3D printers.
- Integrated main control chip for efficient processing.
- Supports various stepper motor drivers (e.g., A4988, DRV8825, TMC2100, TMC2208, TMC2209).
- Multiple interfaces for motors, heaters, sensors, and endstops.
- USB connectivity for firmware flashing and communication.

5. Setup and Installation

Warning: Installation of a motherboard involves working with electrical components. Ensure the 3D printer is completely powered off and unplugged from the mains electricity before beginning any installation. If you are unsure about any steps, seek assistance from a qualified technician.

1. **Preparation:**

   Gather necessary tools (screwdrivers, wire cutters, zip ties, etc.). Back up any existing firmware or configuration files from your old motherboard if possible. Obtain the correct firmware for your specific Artillery printer model (Sidewinder X1 or Genius) and the MKS Gen L V1.0 board.

2. **Accessing the Motherboard:**

   Carefully open the electronics enclosure of your 3D printer. This usually involves removing several screws. Take note of how the existing wires are connected to the old motherboard, or take photographs for reference.

3. **Disconnecting the Old Motherboard:**

   Systematically disconnect all wires from the old motherboard. Pay close attention to the polarity of power connections and the orientation of stepper motor cables, endstop wires, and thermistor wires. Labeling wires can prevent errors during reassembly.

4. **Installing the New Motherboard:**

   Mount the TJGOPKUJ MKS Gen L V1.0 motherboard into the enclosure, ensuring it is securely fastened with screws. Connect all wires to the corresponding ports on the new motherboard. Refer to the wiring diagrams provided by Artillery for your specific printer model, or use your reference photos.

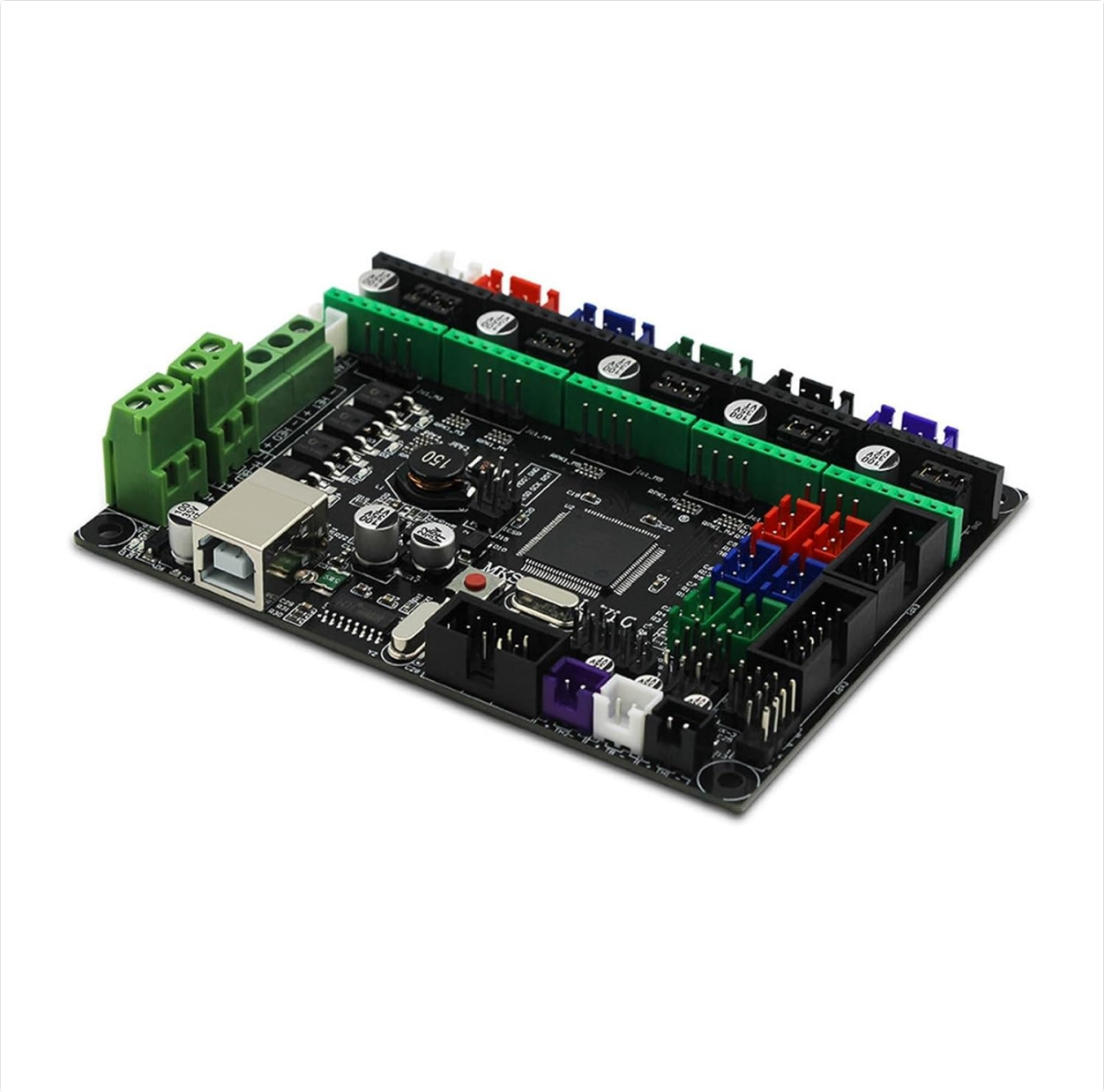


Figure 5.1: Angled view of the MKS Gen L V1.0 motherboard, highlighting the USB port and various connection terminals for motors, sensors, and power.

5. **Firmware Flashing:**

   Connect the motherboard to your computer via a USB cable. Use a compatible flashing tool (e.g., Arduino IDE, PlatformIO) to upload the correct firmware for your printer model to the MKS Gen L V1.0 board. Ensure all firmware settings (e.g., stepper drivers, bed size, thermistor types) match your printer's configuration.

6. **Initial Testing:**

   Before closing the enclosure, perform initial power-on tests. Verify that the printer powers on, the display functions, and motors respond correctly to commands. Check thermistor readings to ensure they are accurate. Perform a PID tune for the hotend and heated bed.

7. **Final Assembly:**

   Once all tests are successful, carefully close and secure the electronics enclosure.

6. Operation (Firmware and Configuration)

The MKS Gen L V1.0 motherboard's operation is primarily governed by the firmware installed on it. After successful installation and firmware flashing, the printer will operate according to the firmware's parameters. Key operational aspects include:

- **G-code Interpretation:** The motherboard processes G-code commands sent from a slicer or host software to control printer movements, temperatures, and other functions.
- **Motor Control:** It drives the stepper motors for X, Y, Z axes, and extruders.
- **Temperature Regulation:** Manages the heating of the hotend and heated bed, maintaining target temperatures using PID control.
- **Sensor Monitoring:** Reads data from endstops, thermistors, and other sensors to ensure safe and accurate operation.
- **User Interface:** Communicates with the printer's display and control knob, allowing user interaction.

Any changes to printer behavior or calibration typically require modifying and re-flashing the firmware.

7. Maintenance

Proper maintenance ensures the longevity and reliable performance of your motherboard:

- **Keep Clean:** Periodically inspect the motherboard for dust and debris. Use compressed air or a soft brush to gently clean the board. Ensure the printer is powered off and unplugged before cleaning.
- **Check Connections:** Ensure all wire connections are secure and free from corrosion. Loose connections can lead to intermittent issues or component damage.
- **Environmental Control:** Operate the printer in a clean, dry environment with stable temperatures. Avoid extreme humidity or direct exposure to liquids.
- **Firmware Updates:** Regularly check for updated firmware versions from Artillery or the MKS community. Updates can provide new features, bug fixes, and performance improvements.

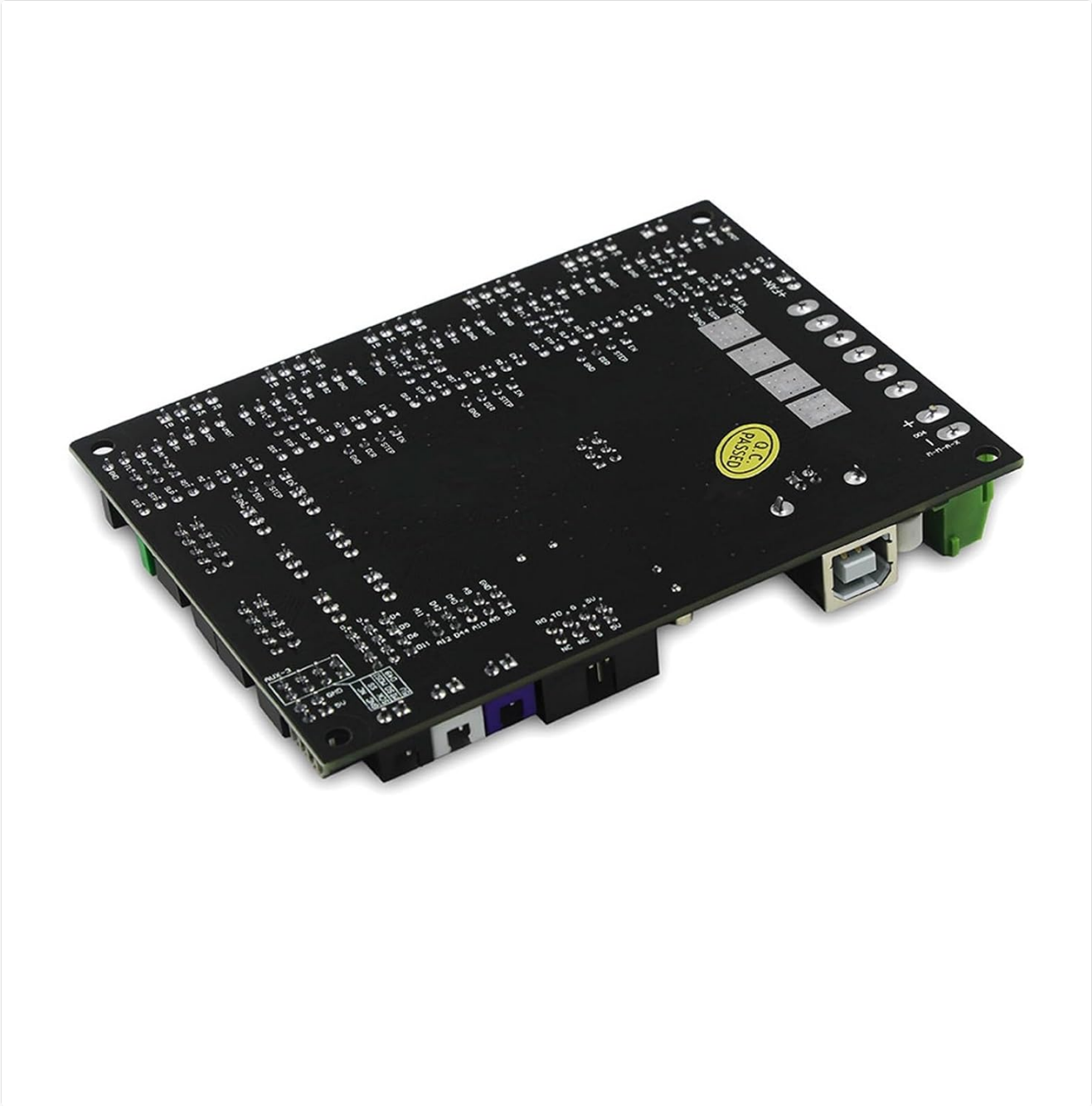


Figure 7.1: Bottom view of the MKS Gen L V1.0 motherboard, showing the quality control sticker.

8. Troubleshooting

If you encounter issues with your MKS Gen L V1.0 motherboard, consider the following troubleshooting steps:

- **No Power:**

  Check power supply connections and ensure the power supply is functioning. Verify the main power connector (24-Pin) is securely seated. Inspect for any visible damage to the board or components.
- **Printer Not Responding:**

  Confirm the correct firmware has been flashed. Check USB connection to the computer. Ensure all motor, endstop, and thermistor wires are correctly connected and not loose.
- **Incorrect Temperatures:**

  Verify thermistor connections and ensure the correct thermistor type is configured in the firmware. Check for damaged thermistor wires.
- **Motor Issues (No Movement/Wrong Direction):**

Check stepper motor driver installation and orientation. Ensure motor wires are correctly connected. Verify motor current settings in firmware or on drivers. Check endstop functionality.

- **Communication Errors:**

  Ensure correct COM port and baud rate are selected in your host software. Reinstall USB drivers if necessary.

For persistent issues, consult online communities for Artillery printers or MKS boards, or contact the manufacturer's support.

9. Specifications

Feature	Detail
Model Name	MKS Gen L V1.0
Brand	TJGOPKUJ
Compatible Devices	Artillery Genius Pro, Artillery SW-X2, Artillery Sidewinder X1, Genius 3D Printer
Item Type	Motherboard
Main Power Connector Type	24-Pin
Number of Ports	2 (USB, etc.)
Package Dimensions	1.18 x 0.79 x 0.39 inches
Item Weight	3.49 ounces

10. Warranty and Support

For warranty information and technical support, please contact the manufacturer, TJGOPKUJ, directly through their official channels or the retailer from whom the product was purchased. Keep your proof of purchase for any warranty claims.

© 2024 TJGOPKUJ. All rights reserved.