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› Midzooparts LCUS-4 4 Channel USB Relay Module User Manual

## Midzooparts LCUS-4

# Midzooparts LCUS-4 4 Channel USB Relay Module User Manual

Model: LCUS-4

## 1. INTRODUCTION

This manual provides comprehensive instructions for the Midzooparts LCUS-4 4 Channel USB Relay Module. It covers the module's features, hardware components, setup procedures, operational commands, and technical specifications. Please read this manual thoroughly before operating the device to ensure proper functionality and safety.

## 2. FEATURES

- Onboard 8-bit high-performance microcontroller chip.
- Integrated CH340 USB to serial port control chip.
- Power LED indicator and individual relay status LED indicators.
- Supports relay switch status checking via command: 0xFF.
- Equipped with four 5V, 10A/250VAC, 10A/30VDC relays, designed for up to 100,000 continuous operations.
- Power supply options: 5V, supporting both USB power and external power supply switching.
- Output type: Relay switch signal.
- Includes over-current protection and relay diode freewheel protection.

## 3. HARDWARE INTRODUCTION

The LCUS-4 module has a compact design with clearly labeled interfaces for easy integration.  
Board dimensions: 56mm x 63mm.

### 3.1. Interface on Board

- **External Power Supply Port:** Connects to a DC 5V power source. For applications requiring more than two relays simultaneously, an external power supply is recommended due to potential USB current limitations.
- **USB Power Supply / External Power Supply Switching:** A jumper or switch labeled "Usb\_P" (for USB power) and "Ext\_P" (for external power) allows selection of the power source.
- **USB Socket:** Used for USB connection and power supply.

- **Reserved USB Interface:** Additional USB interface for future expansion or specific applications.

### 3.2. Interface on Relay

Each of the four relays provides three connection terminals:

- **COM (Common Port):** The common terminal for the relay switch.
- **NC (Normally Closed Port):** This terminal is connected to COM when the relay is de-energized (off).
- **NO (Normally Open Port):** This terminal is connected to COM when the relay is energized (on).

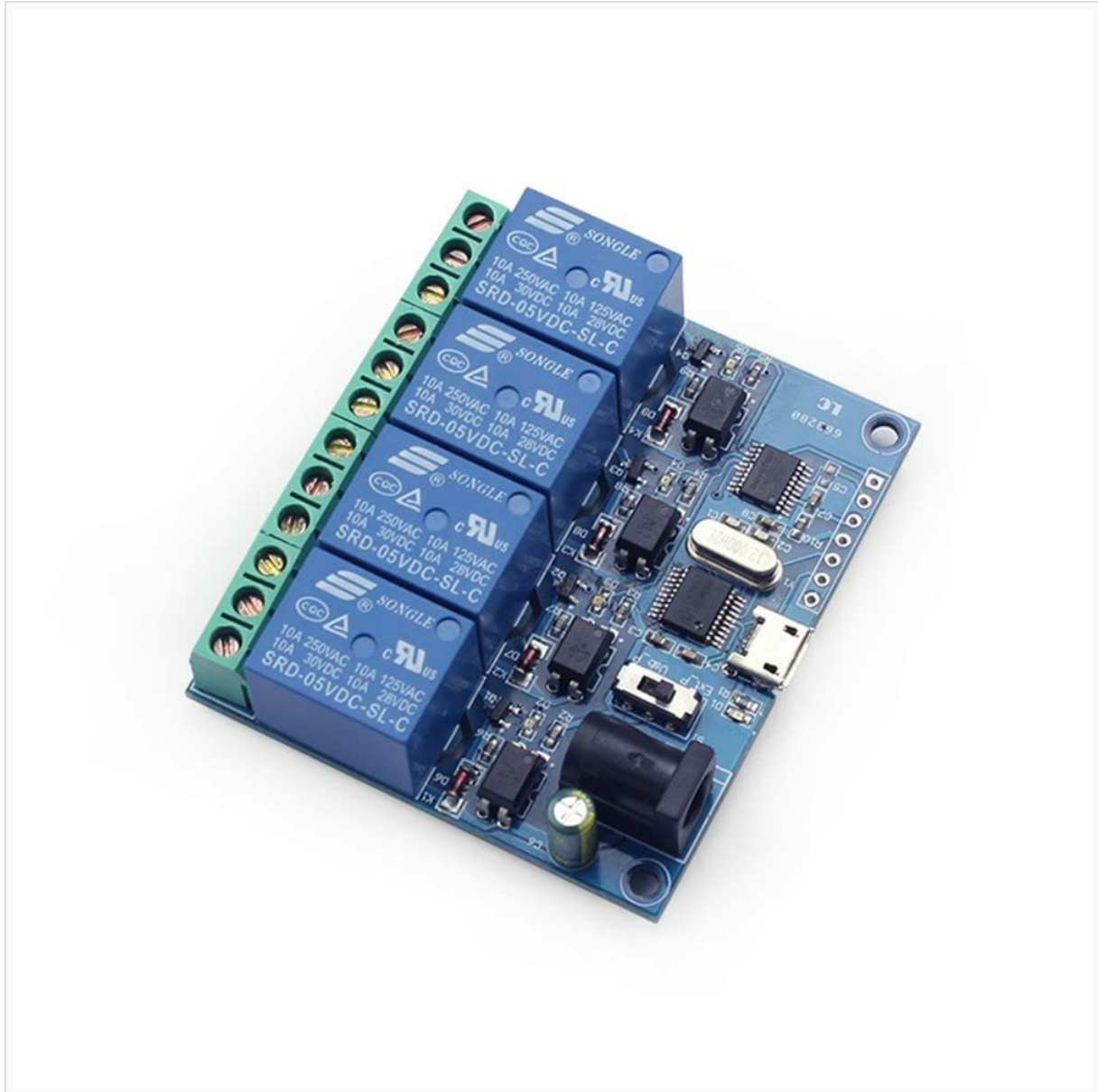


Figure 1: Midzoo LCUS-4 4 Channel USB Relay Module. This image displays an overhead view of the module, highlighting its four blue Songle SRD-05VDC-SL-C relays on the left side, each rated for 10A at various AC/DC voltages. The circuit board on the right contains the CH340 USB to serial chip, a micro USB port for connectivity, a DC power jack for external power, and green screw terminals for connecting external devices to the relay contacts.

## 4. SETUP

### 4.1. Power Supply Selection

1. **USB Power Supply:** Connect a Micro USB cable from your computer or a 5V USB power adapter to the module's USB socket. Ensure the power selection jumper is set to "Usb\_P".
2. **External Power Supply:** Connect a DC 5V power adapter to the external power supply port. Ensure the

power selection jumper is set to "Ext\_P". This method is recommended when operating more than two relays simultaneously to ensure stable power delivery.

Once powered, the onboard power LED indicator should illuminate.

## 5. OPERATING INSTRUCTIONS

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The LCUS-4 module communicates via a serial port. Ensure your system has the necessary drivers for the CH340 USB to serial chip installed.

### 5.1. Communication Protocol

The default baud rate for serial communication is **9600 bps**.

Commands are sent in HEX format to control relay operations or inquire about their status.

Action	HEX Command
Open 1st Channel	A0 01 01 A2
Close 1st Channel	A0 01 00 A1
Open 2nd Channel	A0 02 01 A3
Close 2nd Channel	A0 02 00 A2
Open 3rd Channel	A0 03 01 A4
Close 3rd Channel	A0 03 00 A3
Open 4th Channel	A0 04 01 A5
Close 4th Channel	A0 04 00 A4
Status Inquiry	FF

When a relay is activated or deactivated, its corresponding LED indicator on the board will change state.

## 6. SPECIFICATIONS

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- **Brand:** Midzooparts
- **Model:** LCUS-4
- **Coil Voltage:** 5 Volts
- **Current Rating:** 10 Amps
- **Contact Current Rating:** 10 Amps
- **Operation Mode:** Automatic
- **Board Dimensions:** 56mm x 63mm
- **Relay Life:** Up to 100,000 continuous operations
- **Baud Rate:** 9600 bps (default)

## 7. MAINTENANCE

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The LCUS-4 module is designed for low maintenance. To ensure optimal performance and longevity:

- Keep the module clean and free from dust and debris.

- Avoid exposing the module to excessive moisture or extreme temperatures.
- Ensure all connections are secure and free from corrosion.
- Do not exceed the specified voltage and current ratings for the relays.

## 8. TROUBLESHOOTING

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- **Module Not Powering On:**

- Verify the power source (USB or external) is connected correctly and providing 5V.
- Check the power selection jumper ("Usb\_P" or "Ext\_P") is set appropriately.
- Ensure the power LED indicator is illuminated.

- **Relays Not Responding:**

- Confirm the CH340 USB to serial drivers are installed on your computer.
- Verify the serial communication settings, especially the baud rate (default 9600 bps).
- Check that the HEX commands are being sent correctly as specified in Section 5.1.
- Ensure the external power supply is used if operating multiple relays, as USB current might be insufficient.

- **Intermittent Operation:**

- Check for loose connections on both the power supply and relay terminals.
- Ensure the module is not subjected to electromagnetic interference.

## 9. WARRANTY AND SUPPORT

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For warranty information or technical support regarding your Midzooparts LCUS-4 4 Channel USB Relay Module, please refer to the manufacturer's official website or contact their customer service department. Keep your purchase receipt for any warranty claims.