

HiLetgo 3-01-0038

HiLetgo Micro SD TF Card Reader Module Instruction Manual

Model: 3-01-0038 | Brand: HiLetgo

1. INTRODUCTION

The HiLetgo Micro SD TF Card Reader Module provides a convenient and reliable way to add data storage capabilities to your microcontroller projects. This module facilitates reading and writing to Micro SD and SDHC cards using the Serial Peripheral Interface (SPI) protocol. It is designed with an integrated level shifter and a 3.3V voltage regulator, ensuring compatibility with both 5V and 3.3V logic level microcontrollers, such as Arduino UNO R3, Mega 2560, and Due.

2. KEY FEATURES

- **SPI Interface:** Utilizes a standard 6-pin SPI interface for communication.
- **Voltage Level Shifting:** Onboard level shifter supports both 5V and 3.3V logic levels, making it compatible with a wide range of microcontrollers.
- **3.3V Regulator:** Integrated 3.3V LDO regulator ensures stable power for the Micro SD card.
- **Card Compatibility:** Supports Micro SD and high-speed SDHC cards.
- **Easy Card Insertion:** Features a push-pull type Micro SD card slot for simple insertion and removal.
- **Compact Design:** Lightweight and small form factor for easy integration into projects.
- **Mounting Holes:** Four M2 screw mounting holes (2.2mm diameter) for secure installation.

3. SETUP GUIDE

This section details the physical connections and initial setup for the Micro SD card reader module.

3.1 Pinout Description

The module features a 6-pin header for connection to your microcontroller:

Pin	Description	Function
GND	Ground	Connect to the ground of your microcontroller.

Pin	Description	Function
VCC	Power Supply	Connect to 4.5V - 5.5V power supply (e.g., 5V from Arduino).
MISO	Master In Slave Out	SPI data line from SD card to microcontroller.
MOSI	Master Out Slave In	SPI data line from microcontroller to SD card.
SCK	Serial Clock	SPI clock signal.
CS	Chip Select	Selects the SD card for SPI communication.

3.2 Connection Diagram

Refer to the following image for a visual representation of the module's pinout and components.

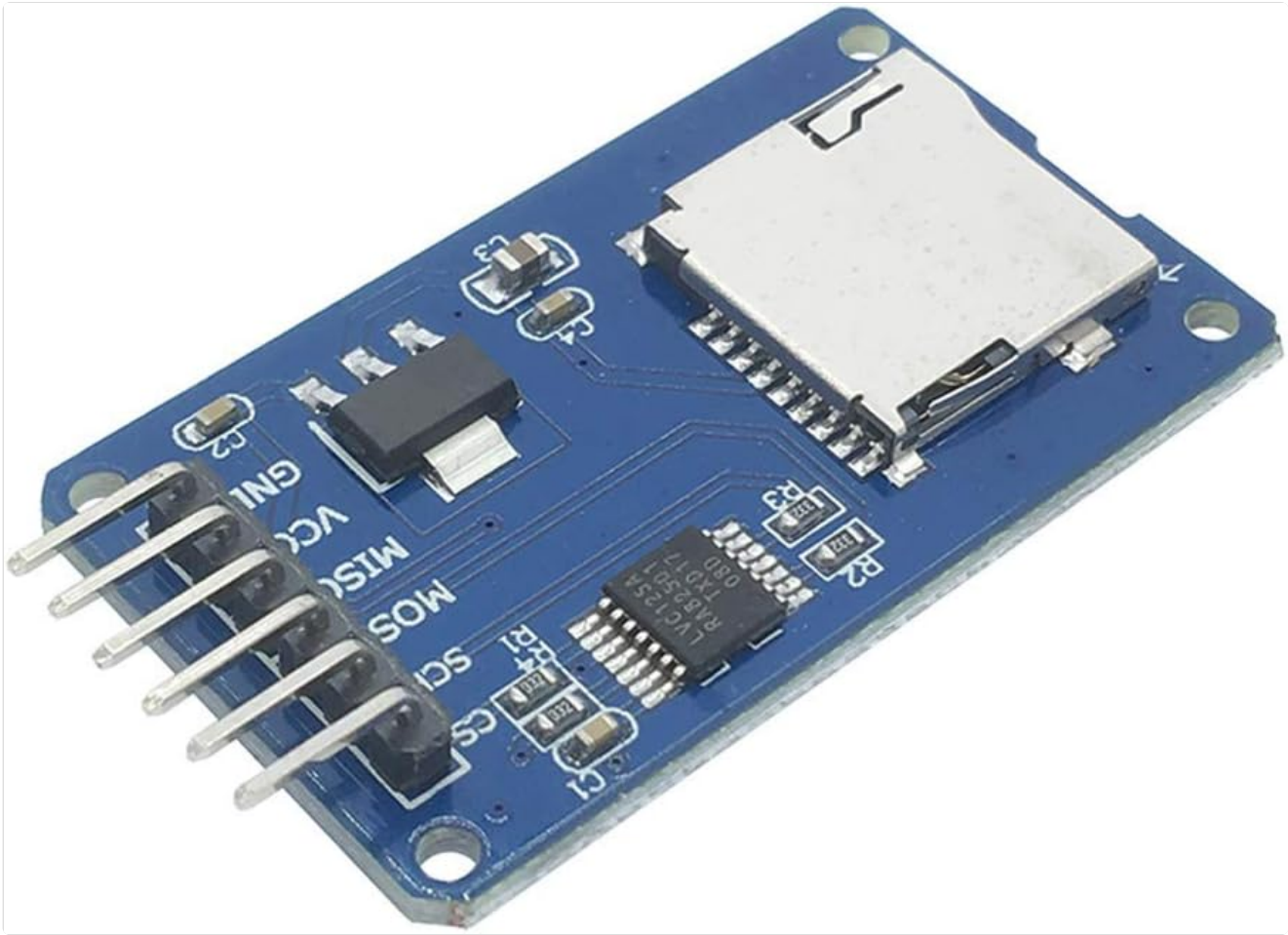
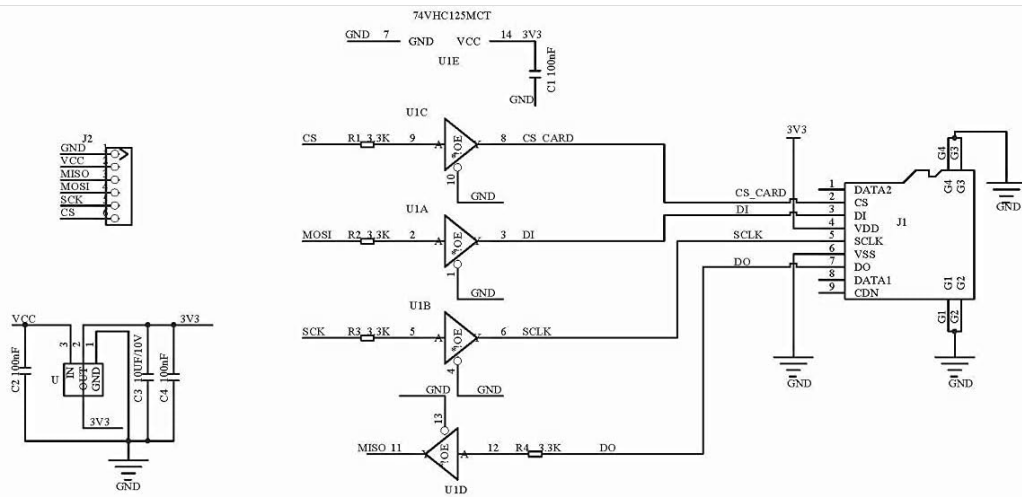


Image: Top view of the HiLetgo Micro SD Card Reader Module, highlighting the 6-pin SPI interface and the Micro SD card slot.



CATALEX			
TITLE: MicroSD Card Adapter			
Design: Fred.Chu	Check:		
Date: 07/12/2013	Vision: v0.9b	Sheet: 1/1	

Image: Schematic diagram illustrating the internal circuitry and connections of the Micro SD Card Reader Module.

3.3 Initializing the Module

To use the module with an Arduino board, you will typically need the Arduino SD library. Ensure your Micro SD card is formatted as FAT16 or FAT32. Insert the card into the module before powering on or initializing the SD library in your code.

Example Arduino SPI pin connections (may vary by board):

- **MOSI:** Digital Pin 11 (UNO, Nano, Mini), ICSP Header Pin 4 (Mega)
- **MISO:** Digital Pin 12 (UNO, Nano, Mini), ICSP Header Pin 1 (Mega)
- **SCK:** Digital Pin 13 (UNO, Nano, Mini), ICSP Header Pin 3 (Mega)
- **CS:** Can be any digital pin, commonly Pin 4 or 10.

4. OPERATING INSTRUCTIONS

4.1 Inserting and Removing the Micro SD Card

1. **Insertion:** Gently push the Micro SD card into the slot until it clicks into place. Ensure the card is oriented correctly.
2. **Removal:** Push the inserted card slightly further in until it clicks again, then release. The card will spring out slightly, allowing you to pull it out.

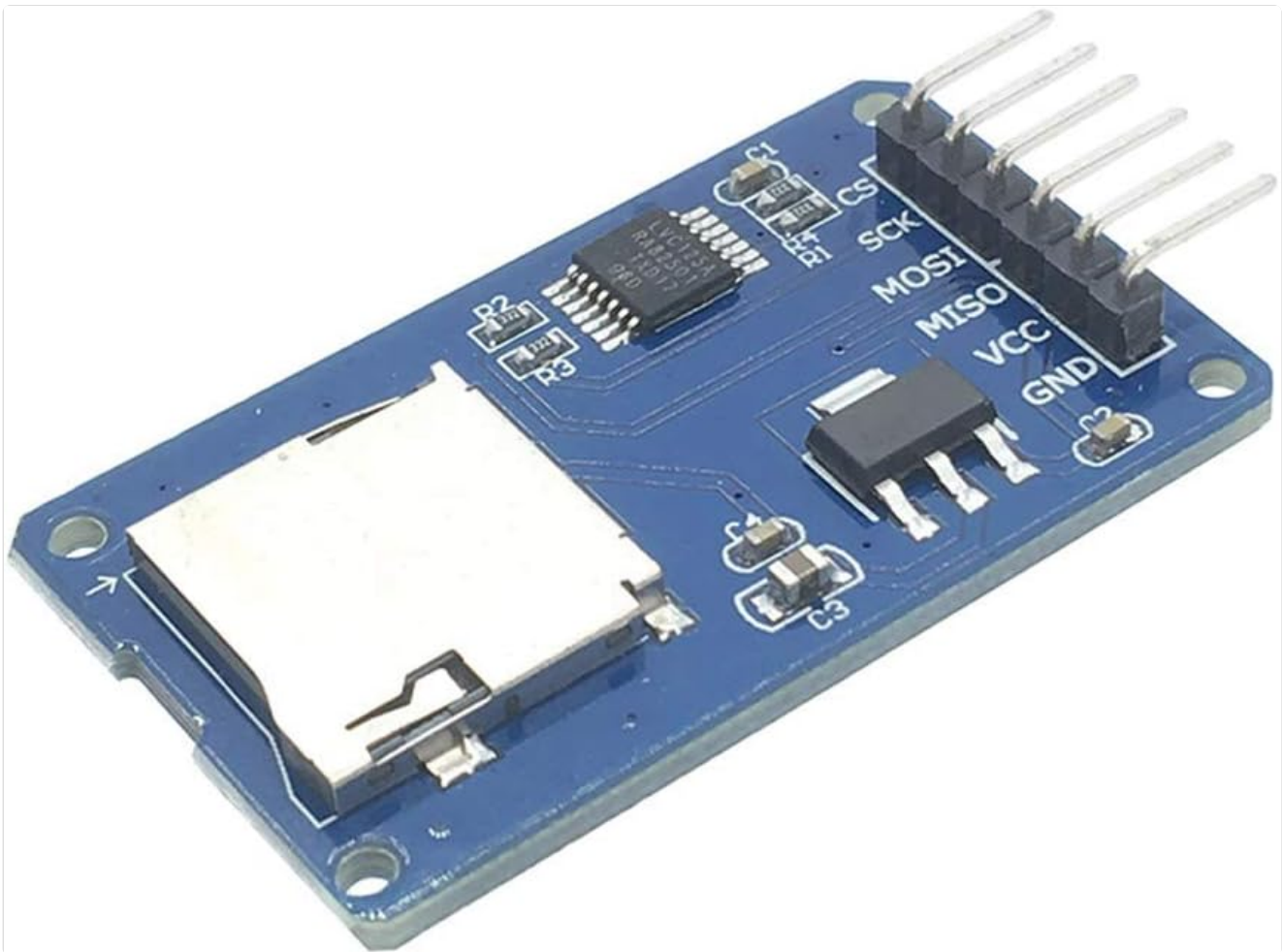


Image: HiLetgo Micro SD Card Reader Module with a Micro SD card being inserted into the slot.

4.2 Basic Data Operations (Arduino Example)

After connecting the module and including the SD library, you can perform read and write operations. Here's a conceptual overview:

- **Initialization:** Use `SD.begin(chipSelectPin)` to initialize the SD card.
- **Writing Data:** Open a file using `SD.open("filename.txt", FILE_WRITE)`, write data using `file.print()` or `file.write()`, then close the file with `file.close()`.
- **Reading Data:** Open a file using `SD.open("filename.txt")`, read data using `file.read()` or `file.readString()`, then close the file.
- **Checking for Files:** Use `SD.exists("filename.txt")` to check if a file exists.

For detailed code examples, refer to the official Arduino SD library documentation and examples.

5. MAINTENANCE

- **Environmental Conditions:** Keep the module in a dry environment, away from excessive moisture, dust, and extreme temperatures.
- **Static Discharge:** Handle the module with care to avoid electrostatic discharge, which can damage electronic components.
- **Cleaning:** If necessary, gently clean the module with a soft, dry brush or compressed air. Avoid using liquids or abrasive materials.
- **Storage:** When not in use, store the module in its original anti-static packaging or a similar protective container.

6. TROUBLESHOOTING

- **Module Not Detected / SD Card Initialization Fails:**
 - Verify all wiring connections (GND, VCC, MISO, MOSI, SCK, CS) are correct and secure.
 - Ensure the module is receiving adequate power (4.5V-5.5V to VCC).
 - Check that the Micro SD card is properly inserted and formatted (FAT16 or FAT32).
 - Confirm the correct Chip Select (CS) pin is used in your code.
 - Some Micro SD cards may be incompatible; try a different card.
- **Read/Write Errors:**
 - Ensure the Micro SD card is not write-protected.
 - Check for sufficient power supply stability.
 - Verify your code logic for file operations (opening, writing, reading, closing).
 - The card might be corrupted; try reformatting or using a new card.
- **Compatibility with 3.3V Microcontrollers:**
 - While the module has a level shifter, some users report issues with 3.3V MCUs failing to mount the SD card if the VCC is also 3.3V. It is generally recommended to power the module with 5V (if available from your MCU board) to ensure the level shifter operates optimally, even if your MCU logic is 3.3V.

If issues persist, consult online forums and communities for specific microcontroller and SD library troubleshooting tips.

7. SPECIFICATIONS

Feature	Detail
Model	3-01-0038
Interface	SPI (Serial Peripheral Interface)
Number of Pins	6 (GND, VCC, MISO, MOSI, SCK, CS)
Input Voltage (VCC)	4.5V to 5.5V
Logic Level Compatibility	5V and 3.3V (with onboard level shifter)
Onboard Regulator Output	3.3V
Card Support	Micro SD Card, Micro SDHC Card
Mounting Holes	4 x M2 screw holes (2.2mm diameter)
Weight	Approximately 50g (for a pack of 5, individual module weight is less)
Operating System Compatibility	Linux, Mac OS, Windows (when used with appropriate host systems)

8. WARRANTY AND SUPPORT

This product is manufactured by HiLetgo. For technical support or if you encounter any issues with your product, please contact HiLetgo directly.

Contact Information:

- **Website:** www.hiletgo.com
- **Email:** support@hiletgo.com

Please retain your purchase receipt for any warranty claims, if applicable. Specific warranty terms may vary by region and retailer.

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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.

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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