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› HiLetgo Raspberry Pi Camera Module 5MP OV5647 with Night Vision and Adjustable Focus User Manual

HiLetgo pi 3b/3b+

HiLetgo Raspberry Pi Camera Module 5MP OV5647 User Manual

Model: pi 3b/3b+ | Brand: HiLetgo

INTRODUCTION

This manual provides instructions for the HiLetgo Raspberry Pi Camera Module 5MP OV5647. This camera is designed for use with Raspberry Pi 2B, 3B, and 3B+ models, offering 5-megapixel still images and 1080p video recording capabilities. It features adjustable focus and supports night vision with integrated infrared (IR) fill lights. The module is suitable for various projects requiring image or video capture, such as surveillance, motion detection, and time-lapse photography.

PACKAGE CONTENTS

Verify that all components are present in your package:

- 1 x RPi Camera Module (OV5647 sensor)
- 2 x Infrared (IR) Fill Lights
- 1 x 15-pin FFC (Flexible Flat Cable)
- 1 x Camera Case (Acrylic parts and fasteners)
- Heatsinks (for optional use)

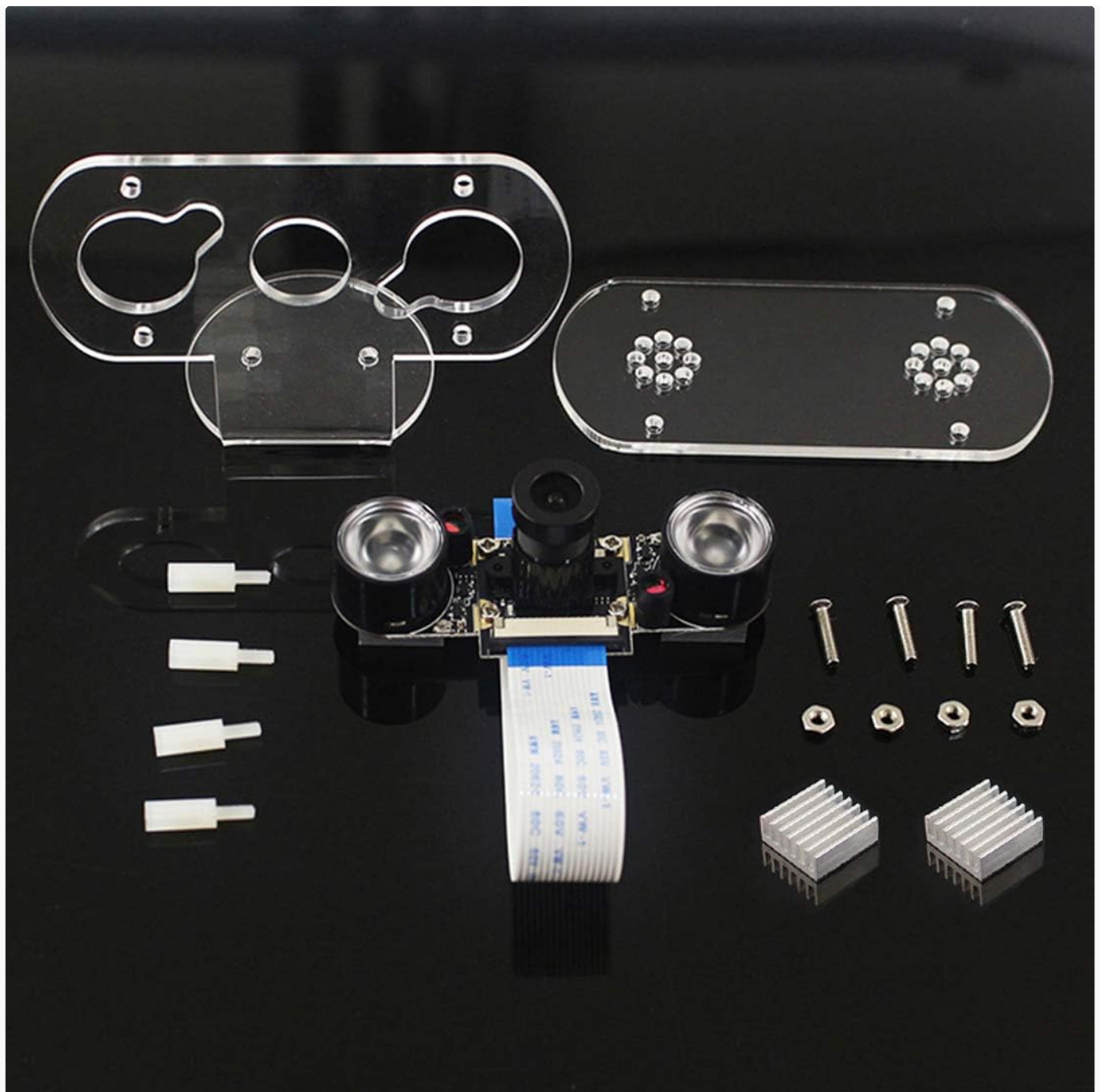


Image: All components included in the HiLetgo Raspberry Pi Camera Module kit, including the camera board, two IR lights, a ribbon cable, acrylic case parts, screws, and heatsinks.

SETUP INSTRUCTIONS

1. **Attach IR Fill Lights:** Carefully connect the two IR fill lights to the designated ports on the camera module board. Ensure correct polarity if applicable.
2. **Assemble Camera Case:** Use the provided acrylic parts and screws to assemble the protective case around the camera module and IR lights. Ensure the camera lens and IR sensors are unobstructed.



Image: The camera module fully assembled inside its clear acrylic protective case, showing the lens and IR lights.

3. **Connect Ribbon Cable:** Insert one end of the 15-pin FFC into the camera module's CSI (Camera Serial Interface) connector. Ensure the blue tab on the cable faces away from the camera board. Gently lift the connector's locking tab, insert the cable, and then press the tab down to secure it.
4. **Connect to Raspberry Pi:** With your Raspberry Pi powered off, locate the CSI connector on the Raspberry Pi board. Gently lift the locking tab, insert the other end of the 15-pin FFC, ensuring the blue tab faces towards the Ethernet port (or away from the HDMI port, depending on the Pi model). Secure the cable by pressing the locking tab down.



Image: The assembled camera module connected via its ribbon cable to a Raspberry Pi single-board computer.

5. **Optional Heatsink Installation:** If desired, attach the provided heatsinks to the appropriate chips on the camera module board for improved thermal management.

OPERATING INSTRUCTIONS

Software Configuration (Raspbian OS)

To enable and use the camera module, you need to configure your Raspberry Pi's operating system (e.g., Raspbian/Raspberry Pi OS).

1. **Power On:** Connect power to your Raspberry Pi.
2. **Enable Camera Interface:**
 - Open a terminal window or access the desktop environment.
 - Run the command: `sudo raspi-config`
 - Navigate to **Interface Options > Camera > Yes** to enable the camera interface.
 - Reboot your Raspberry Pi when prompted.
3. **Test the Camera:** After reboot, you can test the camera using the following commands in a terminal:
 - To take a still picture: `raspistill -o image.jpg`
 - To record a video: `raspivid -o video.h264 -t 10000`(records for 10 seconds)
4. **Adjust Focus:** The camera features an adjustable focus lens. Gently rotate the lens barrel to achieve the desired focus for your application. This is particularly useful for close-up shots or specific distances.



Image: A detailed view of the camera module, highlighting the adjustable focus lens and the two infrared illuminators.

5. **Night Vision:** The integrated IR fill lights automatically activate in low-light conditions, enabling night vision capabilities. Ensure the IR lights are properly connected for this feature to function.

For advanced usage, programming, and integration into custom applications, refer to the official Raspberry Pi camera documentation and community resources.

MAINTENANCE

- **Cleaning:** Use a soft, dry, lint-free cloth to gently clean the camera lens. Avoid abrasive materials or harsh chemicals. For stubborn smudges, a lens cleaning solution designed for optics can be used sparingly.
- **Handling:** Always handle the camera module by its edges or the protective case. Avoid touching the sensor or the ribbon cable contacts directly to prevent damage from static electricity or oils.
- **Storage:** When not in use, store the camera module in its protective case in a dry, dust-free environment.
- **Cable Integrity:** Periodically inspect the FFC ribbon cable for any signs of wear, kinks, or damage. A damaged cable can lead to connectivity issues.

TROUBLESHOOTING

- **Camera Not Detected:**

- Ensure the ribbon cable is securely inserted into both the camera module and the Raspberry Pi's CSI connector. Check that the locking tabs are fully closed.
- Verify that the camera interface is enabled insudo raspi-config.
- Try a different ribbon cable if available, as cables can sometimes be faulty.
- Ensure your Raspberry Pi OS is up to date.

- **No Image or Black Screen:**

- Check all cable connections as described above.
- Confirm the camera is enabled in raspi-config.
- Ensure sufficient lighting for the camera to capture an image.

- **Image is Red/Discolored:**

- This camera is primarily designed for night vision. If used in bright daylight, the image may appear red due to the IR filter being removed for night vision functionality. This is normal behavior for dedicated night vision cameras.
- Adjust white balance settings in your camera software if available.

- **Poor Image Quality/Blurry Images:**

- Adjust the focus by gently rotating the lens barrel until the image is clear.
- Ensure the lens is clean and free from dust or smudges.
- Check for adequate lighting conditions.

SPECIFICATIONS

Feature	Specification
Sensor	OV5647 CMOS
Still Resolution	5 Megapixels (2592 x 1944 pixels)
Video Resolution	1080p @ 30 FPS, 720p @ 60 FPS, 640x480p @ 60/90 FPS
Aperture (F)	1.8
Focal Length	3.6mm (Adjustable)
Diagonal Viewing Angle	75.7 degrees
Sensor Size	1/4 inch
Power Output	3.3V (for IR LEDs)
Special Features	Night Vision (IR support), Adjustable Focus
Compatible Raspberry Pi Models	Raspberry Pi 2B, 3B, 3B+
Dimensions	25mm x 24mm (Module only)

WARRANTY AND SUPPORT

For warranty information, please refer to the specific terms and conditions provided by your retailer or contact HiLetgo

directly. Product support and technical assistance can be obtained through the following channels:

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



Image: Example of HiLetgo product packaging, which typically includes contact information for support.

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