Manuals+ — User Manuals Simplified.

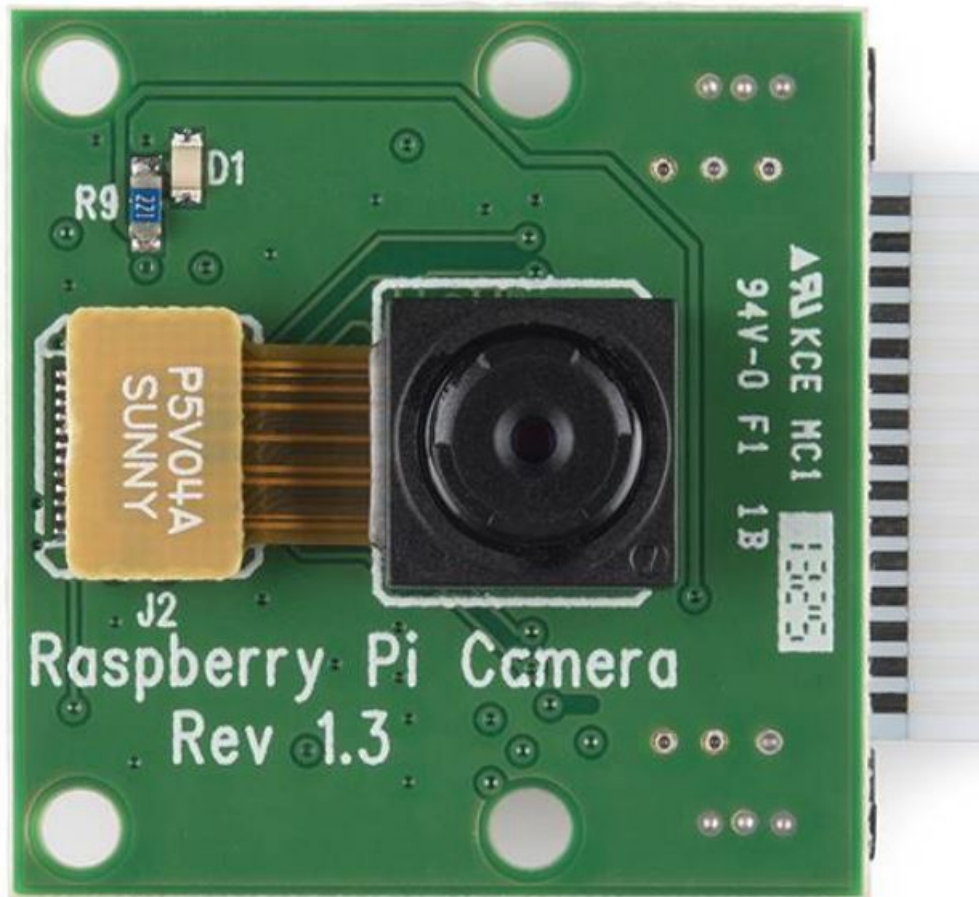# ArduCam 64-Megapixel Autofocus Camera for Raspberry Pi User Guide

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ArduCam 64-Megapixel Autofocus Camera for Raspberry Pi

Installation

Camera Enclosure
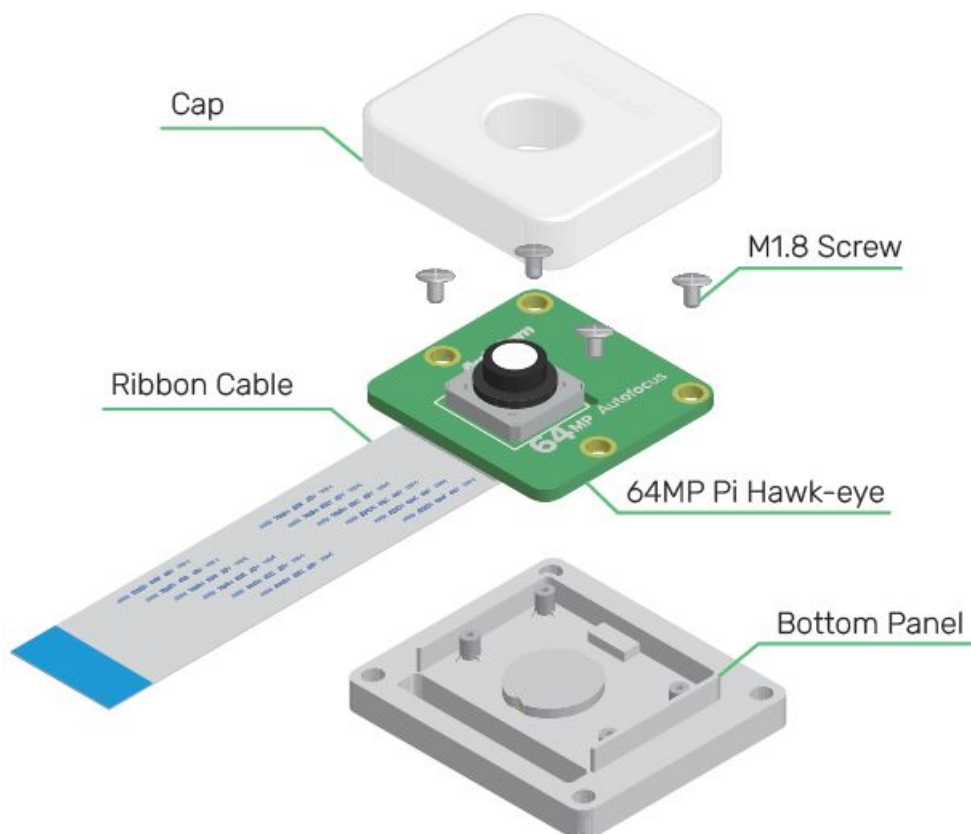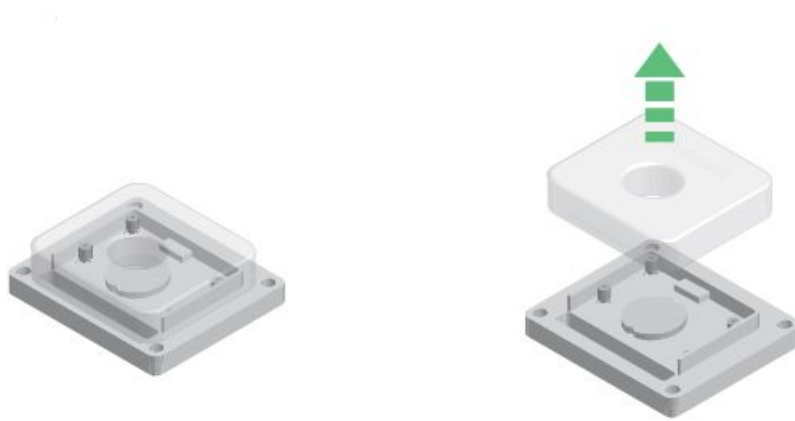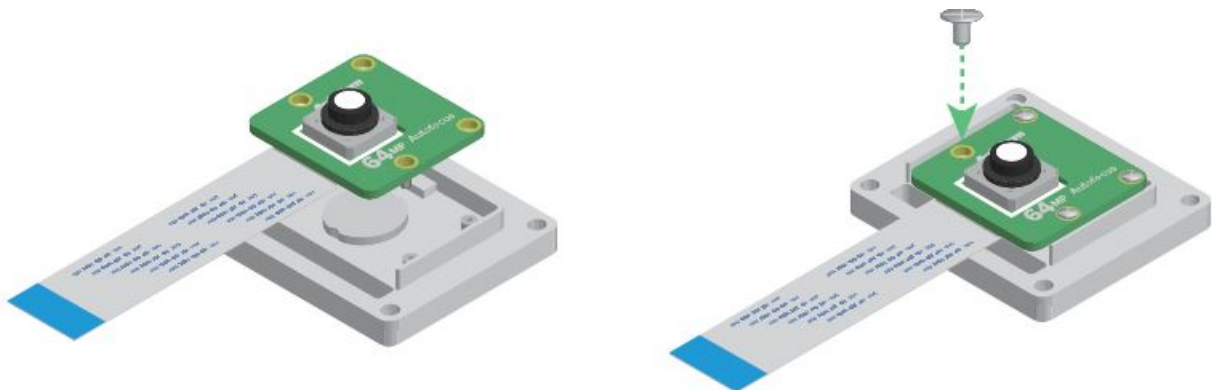

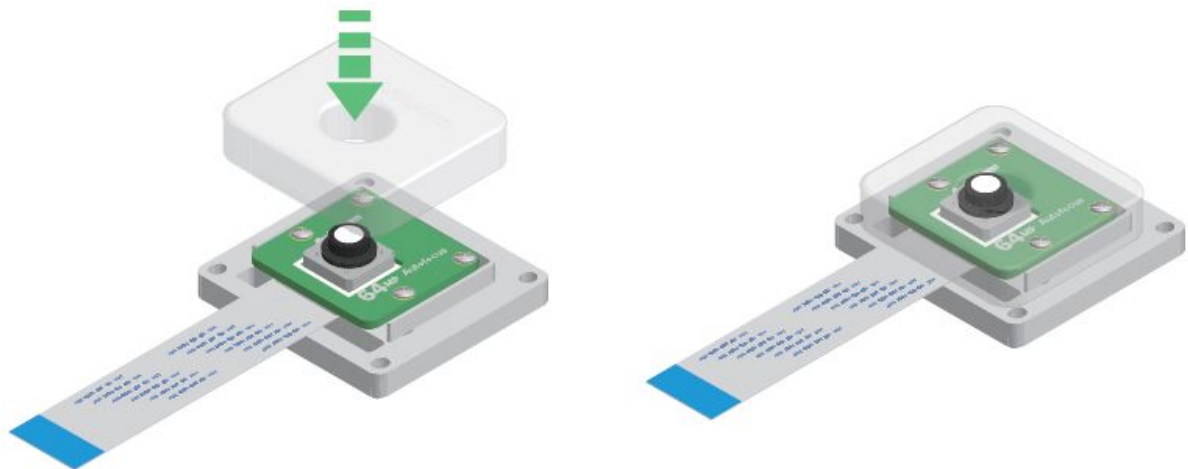To fit a caAmera board (64MP Autofocus Camera for Raspberry Pi)

1. Pull the cap up.

2. 64MP Autofocus Camera for Raspberry Pi Put the module into the bottom panel and install the screws.
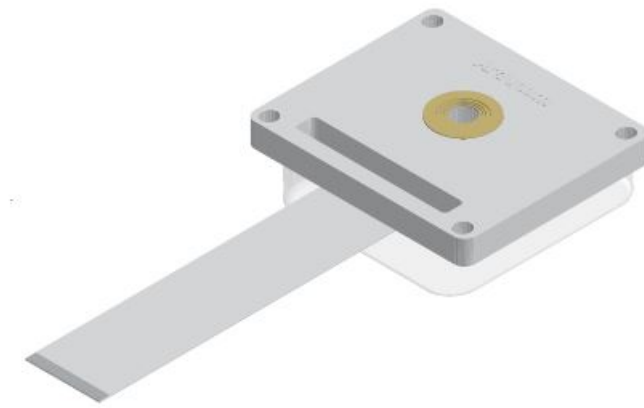

3. Put the cap back.

Tripod Mount

- There's a standard tripod mount (1/4″-20) at the back of the enclosure, you can use it with all sorts of tripods.
- 64MP Autofocus Camera for Raspberry Pi

Operating The Camera

Make sure you are running a newer version of Raspberry Pi OS, a fresh install is highly recommended. (01/28/22 or later releases) For Pi Zero ~ Pi 3 users, please also:

1. Open a terminal
2. Run sudo raspi-config
3. Navigate to Advanced Options
4. Enable Glamor graphic acceleration
5. Reboot your Pi For more details, please refer to the official forum guide on how to configure the camera module

For Raspberry Pi Compute Module 3/4
You need to install the latest Raspberry Pi OS (after 2022/01/28), and do not execute rpi-update After installing the system and drivers (follow the above instructions), add the following information to /boot/config.txt:

- [cm4]
- dtoverlay=arducam_64mp
- dtoverlay=arducam_64mp,cam0

Then reboot.

- libcamera-still -list-cameras

Specify a camera:

- libcamera-still -t 0 -camera 0
- libcamera-still -t 0 -camera 1

Driver Installation

1. . Download the shell scripts chmod +x install_pivariety_pkgs.sh
2. Install libcamra-dev install_pivariety_pkgs.sh -p libcamera_dev
3. Install libcamera-apps

4. Install the kernel driver install_pivariety_pkgs.sh -p 64mp_pi_hawk_eye_kernel_driver

5. Configuration Open /boot/config.txt, under [pi4], add the following line:dtoverlay=vc4-kms-v3d,cma-512

Example:

- [pi4]
- # Run as fast as firmware / board allows arm_boost=1
- dtoverlay=vc4-kms-v3d,cma-512

Quick Start

1. Previewing the camera
    - libcamera-still -t 0 –viewfinder-width 2312 –viewfinder-height 1736
    - Viewfinder-width
    - Set the width of the preview resolution.
    - viewfinder-height
    - Set the height of the preview resolution.
    - We've done numerous tests to find out that the most-balanced preview resolution for this camera sits at 2312 x 1736. (pretty decent quality with best performance)
    - If you are using Pi Hawk-eye with older Pi models, pls set the resolution to 16MP (superpixel mode):
    - width 4624
    - Set the width of the capture.
    - height 3472
    - Set the height of the capture.
2. Taking a picture with autofocus enabled
    - libcamera-still -t 5000 –viewfinder-width 2312 –viewfinder-height 1736 -o pi_hawk_eye.jpg –autofocus –denoise cdn_off
    - To take full-res photos without overwrite, use: libcamera-still –autofocus –timestamp
3. Focus Control/Adjustment
    - git clone https://github.com/ArduCAM/Arducam-Pivariety-V4L2-Driver.git cd Arducam-Pivariety-V4L2-Driver/focus

        python3 FocuserExample.py -d /dev/v4l-subdev1
    - Press the Up/Down Arrow for focus adjustment, press "ctrl + c" to save, or "r" to reset.
4. Step Adjustments
    - python3 FocuserExample.py -d /dev/v4l-subdev1 –focus-step 10
    - While you are trying manual focus control, you can use –focus-step [number] to configure how many steps the motor in the lens should move when the Up/Down key is pressed.
    - By default, it's set to 50, and you can change it to any value between 1 ~ 1023.
5. Digital Zoom
    - While you are trying manual focus control, you can use –focus-step [number] to configure how many steps the motor in the lens should move when the Up/Down key is pressed.
    - When the preview window pops up, navigate back to the terminal and press the following keys on your keyboard:
    - W: Zoom in

- S: Zoom out
- I: Move upward
- K: Move downward
- J: Move left
- L: Move right
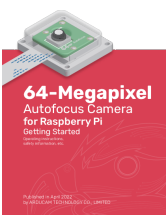- R: Reset
- M: 10x Zoom

Continuous Autofocus

Note: This is a beta version, and we are still making improvements. You can enable Continuous Autofocus simply by adding –continue-autofocus

Example: libcamera-still -t 0 –viewfinder-width 2312 –viewfinder-height 1736 –continue-autofocus

Instructions for Safe Use

- Before connecting, you should always power the Raspberry Pi off and remove the power supply first.
- Make sure the cable on the camera board is locked in place.
- Make sure the cable is correctly inserted in the Raspberry Pi board's MIPI CSI-2 connector. Avoid high temperatures.
- Avoid water, moisture, or conductive surfaces while in operation.
- Avoid folding, or straining the flex cable.
- Avoid cross-threading with tripods.
- Gently push/pull the connector to avoid damaging the printed circuit board.
- Avoid moving or handling the printed circuit board excessively while it's in operation.
- Handle by the edges to avoid damages from electrostatic discharge.
- Where the camera board is stored should be cool and as dry as possible.
- Sudden temperature/humidity changes can cause dampness in the lens and affect the image/video quality.

Documents / Resources

ArduCam 64-Megapixel Autofocus Camera for Raspberry Pi [pdf] User Guide
64-Megapixel, Autofocus Camera for Raspberry Pi, 64-Megapixel Autofocus Camera for Raspberry Pi

References

- **Simplifying embedded vision for all. - Arducam**
- **GitHub - ArduCAM/Arducam-Pivariety-V4L2-Driver: This driver is used for Arducam mipi camera with Pivariety board**
- **github.com/ArduCAM/Arducam-Pivariety-V4L2-**

Driver/releases/download/install_script/install_pivariety_pkgs.sh

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