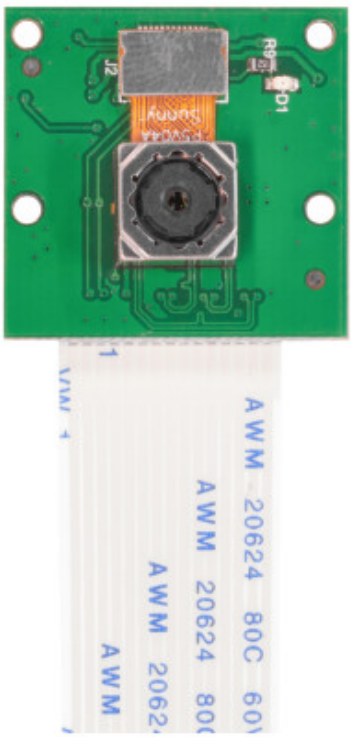
ArduCam B0176 5MP Camera Module for Raspberry Pi Instruction Manual

5MP Camera Module for Raspberry Pi

5MP Camera Module for Raspberry Pi



Program Controllable Motorized Lens with Adjustable Focus
SKU: B0176

Instruction Manual

Contents

Specs

Brand	Arducam
Camera Sensor	
Sensor	OV5647
Resolution	5MP
Still Picture	2592×1944 Max
Video	1080P Max
Frame Rate	30fps@1080P, 60fps@720P
Lens	
IR sensitivity	Integral IR filter, visible light only
Focus Type	Motorized focus
Field of View	54°×44°(Horizontal × Vertical)
Camera Board	
Board Size	25 × 24mm
Connector	15pin MIPI CSI

The Arducam Team

Arducam has been designing and manufacturing camera modules for Raspberry Pi since 2013. Feel free to contact us if you need our help.
Email: **support@arducam.com**
Website: **www.arducam.com**
Skype: Arcam
Doc: arducam.com/docs/cameras-for-raspberry-pi

Connect the Camera

You need to connect the camera module to the Raspberry Pi's camera port, then start up the Pi and ensure the software is enabled.

1. Locate the camera port (between the HDMI and audio port) and gently pull it up on the plastic edges.
2. Push in the camera ribbon, and make sure the silver connectors are facing the HDMI port. Do not bend the flex cable, and make sure it's firmly inserted.
3. Push the plastic connector down while holding the flex cable until the connector is back in place.
4. Enable the camera either way below:

a. Open the raspi-config tool from the Terminal. Run sudo raspi-config, select Enable camera and hit enter, then go to Finish and you'll be prompted to reboot
b. Main Menu > Preferences > Raspberry Pi Configuration > Interfaces > In Camera select Enabled > OK

Use the Camera

The instruction for assembling the acrylic camera case: https://www.arducam.com/docs/cameras-forraspberry-pi/camera-case/

Python scripts for focus control (also instructed in the "Software" section of the next page):
https://github.com/ArduCAM/RaspberryPi/tree/master/Motorized_Focus_Camera

General libraries for the raspberry pi camera:
Shell (Linux command line):
https://www.raspberrypi.org/documentation/accessories/camera.html#raspicam-commands
Python: h**ttps://projects.raspberrypi.org/en/projects/getting-started-with-camera**

Troubleshoot

If the camera module is not working correctly, please try the following things:

1. Run apt-get update and sudo apt-get upgrade before you start the troubleshooting.
2. Make sure you have enough power supply. This Camera module adds 200-250mA power consumption to your Raspberry Pi. You'd better go with an adapter with a bigger power budget.
3. Run vcgencmd get_camera and check the output. The output should be supported=1 detected=1. If support=0, the camera is not enabled. Please enable the camera as instructed in the "Connect the " chapter. If detected=0, the camera is not correctly connected, then check the following points, reboot, and rerun the command.

The ribbon cable should be seated firmly in the connectors and facing the right direction. It should be straight in its connectors.
Make sure the sensor module connector that connects the sensor to the board is firmly attached. This connector could bounce or become loose from the board during shipping or when you put the camera in a case. Use your fingernail to flip up and reconnect the connector with gentle pressure, and it will engage with a slight click.
Always reboot after each attempt to fix it. Please contact Arducam (emails in "The Arducam Team" chapter) if you have tried the steps above and still cannot get it to work.

Software

Install Python Dependency libraries Sudo apt-get install python-opencv
A reboot is required after running this script. git clone: https://github.com/ArduCAM/Raspberry Pi. gifted Raspberry Pi/Motorized Focus Camera
Enable the I2C0: port chmod +x enable_i2c_vc.sh ./enable_i2c_vc.sh

Run the examples

cd RaspberryPi/Motorized_Focus_Camera/python sudo python Motorized_Focus_Camera_Preview.py

Manual focus in preview mode. Use the keyboard up and down keys to see the focusing process. **sudo python Autofocus.py**
Software autofocus powered by OpenCV. Image is saved to the local file system after each successful autofocus.

FAQ

Q: Do you offer an 8MP V2 Auto Focus Camera?

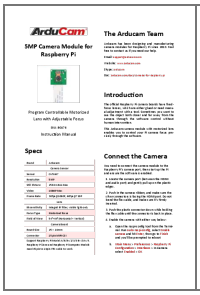
A: Yes, We offer a lens-sensor combination IMX219 8MP drop-in replacement with autofocus support, but you need your own Raspberry Pi Camera Module V2, and you will need to detach the original sensor module.

Q: Do you offer Pi cameras with focus control even higher than 8MP?

A: Yes, Arducam offers 13MP IMX135 and 16MP IMX298 MIPI camera modules with programmable motorized lenses to use with the Raspberry Pi. However, those are for advanced users with a development background. They are not compatible with native Raspberry Pi camera drivers, commands, and software. You need to use Arducam SDK and examples. Go to arducam.com to learn more about the Arducam MIPI Camera Project.

Q: How do I get better low light performance?
This camera has a built-in IR filter and does not work great in low-light conditions. If your project operates in low light, please prepare an external light source or contact us for NoIR versions.

Documents / Resources

	ArduCam B0176 5MP Camera Module for Raspberry Pi [pdf] Instruction Manual B0176, 5MP Camera Module for Raspberry Pi