RunCam Night Eagle Astro Edition Light Leak Solution Using Metal Tape

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Introduction

The RunCam Night Eagle Astro Edition is a very sensitive camera. It will respond to any stray light that reaches the detector. The Night Eagle Astro Edition as it comes from the factory has several light leaks that need to be sealed to achieve maximum performance and to prevent interference by stray lights such as flashlights used around the telescope in the dark. This paper will describe one solution to sealing the light leaks without opening the camera case. It uses metal heat duct tape to seal openings that allow light to leak into the camera.

An alternative method of sealing the light leaks was developed by Bob Anderson. It involves cutting a foam rubber gasket and placing the gasket around the detector board. This method is described in his paper entitled Light-leak-tutorial. Click on the hyperlink to download a copy of the paper.

RunCam is working on a solution to the light leak problem and should be developing a factory solution in a future run of the cameras.

Camera Out of the Box

Here is the back of the camera as it comes out of the box. Light can be found to leak around:

1. all the 'seams' in the back panel
2. the connectors
3. screw holes in the sides of the camera (not shown in the photo)

The easiest way to see where light leaks into the camera is to connect the camera to your capture device and start your monitor so you can see the screen. Leave the lens cap on the lens provided with the camera. A lightly colored dark gray screen should be present. Now, shine a red or green laser into the seams and around the connectors to see if there is a light leak. The screen on the monitor will flash to white if there is a leak. [Don't shine the laser through the holes in the side of the camera as these holes lead directly to the inside of the camera containing the detector chip.]

Step 1: Seal the Seams

Using thin strips of metal tape, seal the seams along the back of the camera. When done, the camera should look something like the picture to the left.

Seal the seams along the back on the three sides and along the top right side adjacent to the connector. Do not seal the connectors yet.

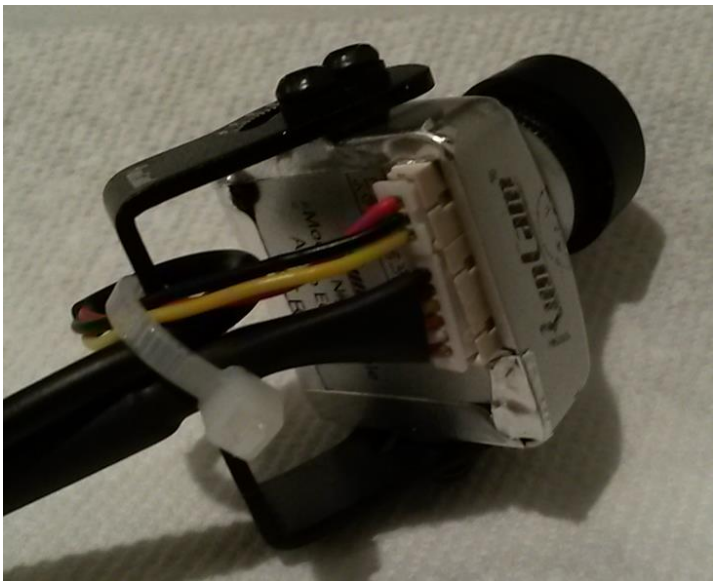
Also, do not cover the screw holes on the side of the camera.

Step 2: Attach the Mounting Bracket

Your camera comes with a mounting bracket, screws, and washer. It also comes with an Allen wrench. Use four screws and washers to attach the mounting bracket to the camera as shown in the pictures.

Step 3: Attach and Secure Cables

Next attach the power/video out cable (three prong connector) to the camera by first wrapping it around the mounting bracket. This will allow for 'strain' relief on the cable and avoid the connector pulling out or the wires pulling out of the connector.



A single wrap around the mounting bracket is sufficient. Then attach the Dongle cable (multi-wire connector) to the camera. Bunch the cables near the center of the mounting bracket and then cinch them tight with a cable tie as shown in the picture.

Step 4: Tape Connectors

Next cut larger strips of metal tape wide enough and long enough to cover both connectors and to overlap the cable by at least ¼ inch. Apply the metal tape to the top and bottom of the connectors, wrapping around the cables and around the ends of the connectors. This does not have to be a thing of beauty. You just want to seal off the light leaks. However, if you don't get it looking to your satisfaction, you can remove the tape and redo the application. Your finished camera should look something like this:

Step 5: Test for Light Leaks

Attach your camera to your capture device and monitor and apply power. Using your laser pointer, shine the pointer around the back and sides of the camera, and around the connector, including where the wires enter the tape.

Watch your monitor and looks for any residual light leaks. If you see the screen brighten, note where you were probing with the laser and apply more tape to that location. Once all the light leaks are sealed you are ready to use your camera for occultation astronomy. Have fun!