Useful Tips for IR LED and CDS Sensor Cameras

Contents

- Introduction
- What is IR and how does it work
- How to disable IR LEDs
  - ACM-123x/1511
  - ACM-143x
- How to replace IR LED boards
  - ACM-1311
- What is CDS sensor and how does it work
- How to disable CDS sensors
  - ACM-8211
- Reference

Introduction

There are various ACTi cameras equipped with IR LEDs or CDS sensors. In this document, we would like to explain how IR LEDs and CDS sensors work, and how users may make adjustments to these functions according to their applications.

What is IR and how does it work

Infrared (IR) light or the infrared part of the spectrum is electromagnetic radiation with wavelength between 700 to 3000 nanometers (nm). As human can see only waves between 400 to 700 nanometers, infrared light is invisible to the human eye.

Sensors for surveillance cameras, however, may detect wavelength up to 1100 nm. This provides an additional source of light for cameras. As this part of the spectrum will be considered as red by sensors, IR is filtered out under color mode, when there is more than enough light. This ensures that the color is accurate and not distorted to red. When it is dark and the camera struggles to see with every last bit of light, models equipped with removable IR-Cut filter will move the filter aside to let in IR light, and shift to black and white mode to avoid the color shift.
In such cases, it is possible to shine an additional source of IR onto the scene by IR LEDs. This additional IR light is visible to the surveillance camera but not to the human eye. This provides a much brighter image in the dark without alerting to subjects that they can be easily seen.

**How to disable IR LEDs**

There are some occasions, however, where users do not want IR LEDs to be turned ON. There are several possible reasons:

1. An IR camera is installed inside camera housing, and the housing cover may reflect the IR light back right in front of the camera, which causes artificially bright areas and distorts the camera’s view outside.
2. Users do not want to see IR light in night mode for any special reasons.

When IR LEDs are disabled, it would not prevent some cameras (ACM-123X/1511) from automatically switching between Day mode and Night mode. Under the same condition, these cameras in Day mode produce color images; in Night mode are capable to detect and sense IR light as well.

There are two ways to disable the IR functions on ACTi cameras. Please refer to the table for details.

<table>
<thead>
<tr>
<th>Model</th>
<th>How to disable IR LED</th>
<th>Wiring/connector</th>
<th>Firmware setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACM-123X</td>
<td>Yes</td>
<td>Yes</td>
<td>N/A</td>
</tr>
<tr>
<td>ACM-1311</td>
<td>Yes</td>
<td>Yes</td>
<td>N/A</td>
</tr>
<tr>
<td>ACM-143X</td>
<td>Yes</td>
<td>Yes</td>
<td>N/A</td>
</tr>
<tr>
<td>ACM-1511</td>
<td>Yes</td>
<td>Yes</td>
<td>N/A</td>
</tr>
<tr>
<td>ACM-3311</td>
<td>Yes</td>
<td>Yes</td>
<td>N/A</td>
</tr>
<tr>
<td>ACM-3511</td>
<td>Yes</td>
<td>Yes</td>
<td>N/A</td>
</tr>
<tr>
<td>ACM-8211</td>
<td>Yes</td>
<td>Yes</td>
<td>N/A</td>
</tr>
</tbody>
</table>

**3-pin IR LED connector**

Before starting working on IR LED disabling, please keep in mind that on some CCD modules, there are two sets of connectors. Typically, a 3-pin connector is IR LED power control while the other 2-pin connector is CDS sensor power control. So to keep color mode in day time, please disengage the 3-pin IR LED connector ONLY, meaning leave CDS sensor working as usual.
ACM-123X/1511
Step1. Remove the cover.
Step2. Disengage the 3-pin IR LED connector as in the pictures.
Step3. Install back the cover.

ACM-143X
Step1. Remove the cover and the rubber ring.
Step2. Disengage the 3-pin connector as in the picture.
Step3. Install back the rubber ring and the cover.

ACM-3511
Step1. Remove the cover.
Step2. Disengage the 3-pin connectors as in the red circle of the picture.
Step3. Install back the cover.
How to replace IR LED boards

To remove an IR LED board from the CCD module, users will need to disengage all screws and connectors step-by-step as in the following instructions.

ACM-1311

Step1. Remove the camera case and the rubber ring.
Step2. Disengage two sets of wire connectors.
Step3. Disengage the LED board by removing two screws.
Step4. Replace the LED board and fasten it back on to the camera.
Step5. Engage the two sets of wire connectors.
Step6. Install the rubber ring and the case.
What is CDS sensor and how does it work

Cadmium sulfide is a chemical compound with the formula CdS. CdS cells (also known as photocells, photoresistors or light dependent resistors). What is a CdS cell? CdS cells are sensors that allow you to detect light. They are small, inexpensive, low-power, easy to use and don't wear out. For that reason they often appear in toys, gadgets and appliances. CdS cells are basically a resistor that changes its resistive value (in ohms) depending on how much light is shining onto the squiggly face.

How to disable CDS sensors

Users may not need CDS sensors to detect light density to automatically switch Day/Night mode. In the following paragraph, we discuss how to disable a CDS sensor by disconnecting the part.

ACM-8211

Step1. Remove the Lens cover by turning it counter-clockwise. Please be careful to keep the internal detail parts intact.

Step2. Disengage the cable inside the red circle.

Step3. Install back the lens cover.
Reference

1. http://www.answers.com