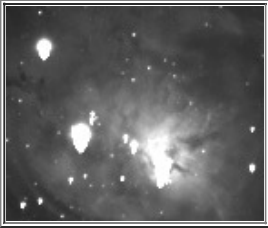


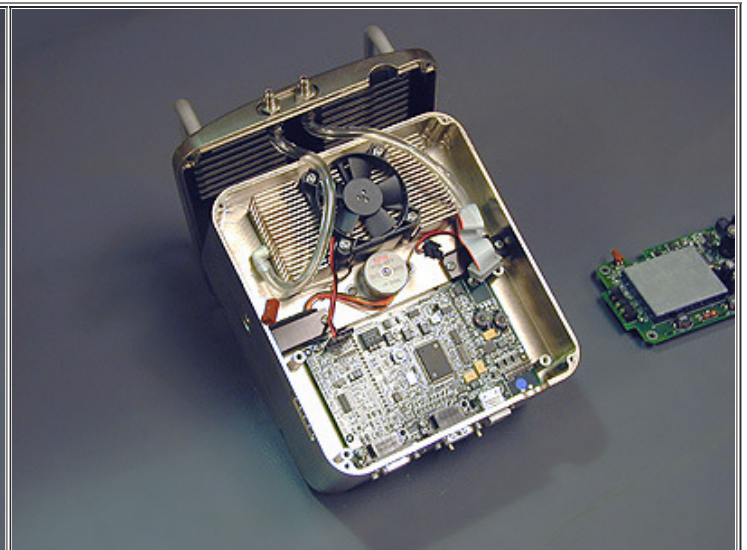
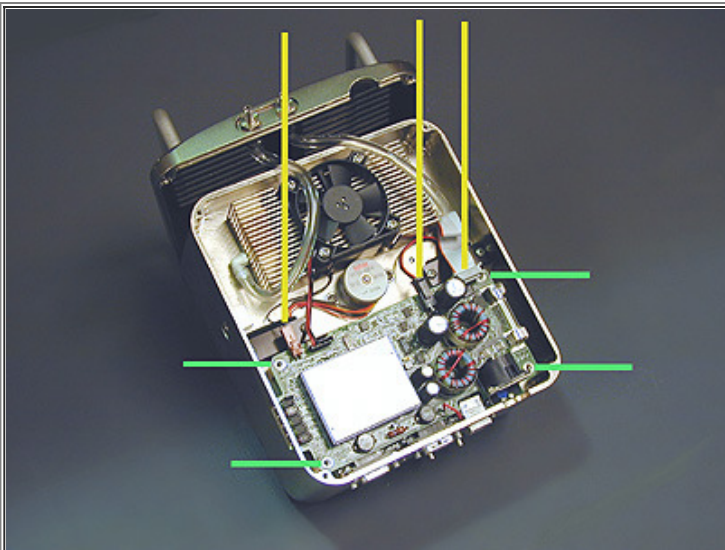
Application Note  
Adjusting the ABG level of the STL-11000M Camera  
February 28, 2005



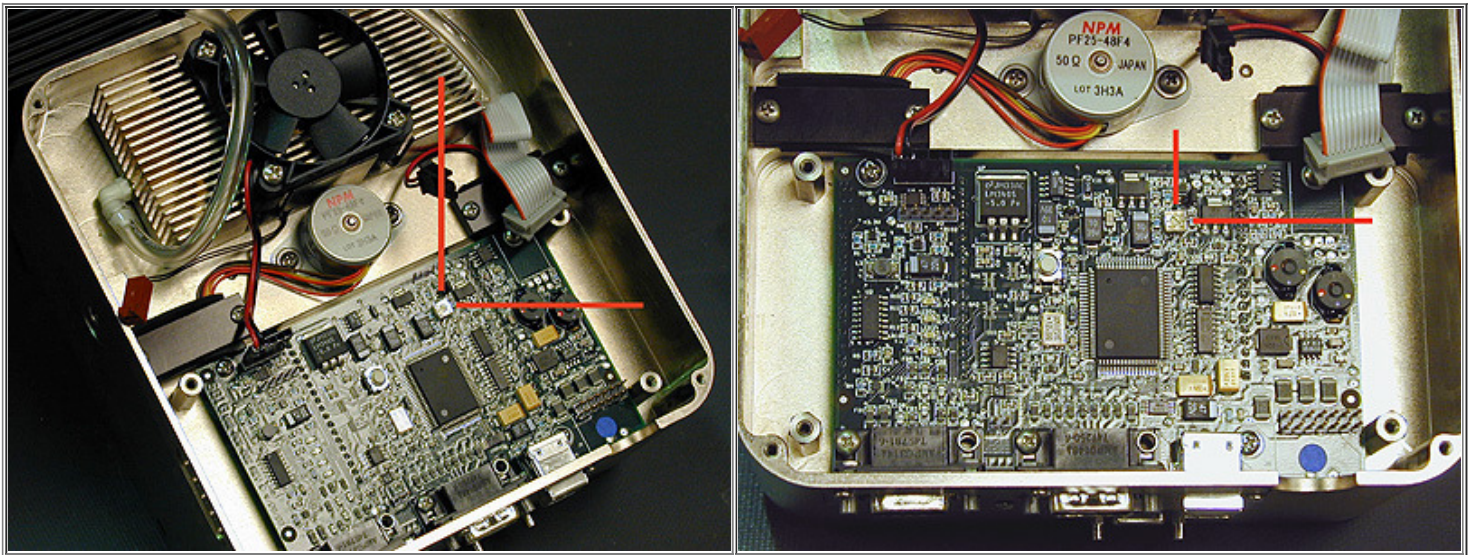
A few STL-11000M users have reported minor blooming on bright stars in relatively short exposures, particularly when imaging with short fast optical systems like camera lenses. The blooming stars take on an inverted tear-drop shape like the sample image at left. The effect we are discussing here is always a vertical bloom below a star in the shape seen in the sample image. This is due to the low level of ABG protection that we normally set at the factory. The level of antiblooming protection is related to full well capacity. The less antiblooming protection, the greater the full well. The greater the antiblooming protection, the less the full well. Up to this point we have set the ABG level on STL-11000M cameras so that it yields the greatest full well capacity and therefore the lowest ABG protection. In most cases the lowest ABG setting works well and does not need to be adjusted. However, there is some variation from CCD to CCD and depending on the type of imaging you do, you may find the ABG level is not adequate. You can adjust it by trimming a pot in the camera. The level of antiblooming (ABG) protection on the STL-11000M camera is determined by a voltage that is controlled by a variable resistor located on the digital board inside the rear cover of the camera. The digital board is underneath the power supply board. To adjust the ABG, remove the power supply board and adjust the variable resistor on the digital board according to these instructions. **For those who are comfortable working with electronic components, the adjustment is simple and straightforward. However, if you perform the adjustment yourself and do happen to damage any component in the process, there will be a charge to repair the camera. If you are not comfortable making this adjustment yourself, and you still feel it needs to be done, you should return your camera to SBIG for adjustment. There is no charge for the service. If you are not sure if it need to be done, send us a sample image and we can determine if it is required. Sample images should be (a) a single frame, cropped, (b) taken with CCDOPS and (c) saved in SBIG format.**

**For greater detail, click on any image below to see an enlargement.**

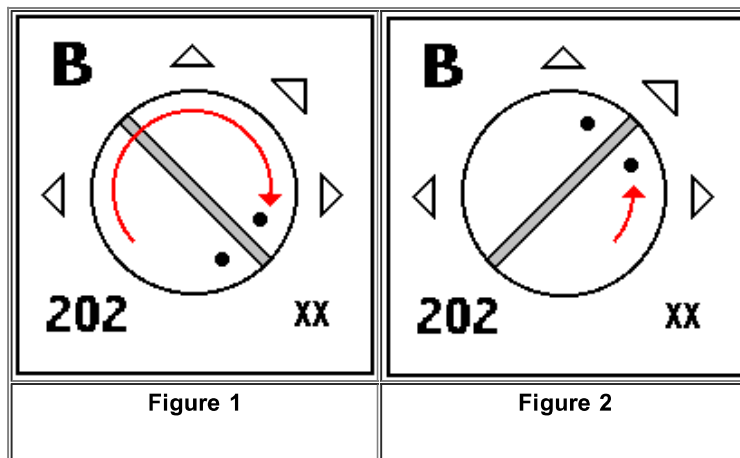
Remove the rear cover of the camera by removing the four hex head screws in the four corners of the cover plate. Carefully lift the cover out of the way taking care not to pull the clear tubing loose from the connections on the cover or on the heat sink. You will see the heat sink fins and the fan. Below the heat sink you will see a printed circuit board. This is the power supply board. It must be removed to gain access to the ABG control which is on a second printed circuit board underneath the power supply.



Locate the three electrical connectors that attach to the top of the power supply board (indicated by the yellow pointers). Unfasten the connectors. Locate the four Phillips head screws that hold down the power supply board (indicated by the green pointers). Remove these four screws. After you have removed the connectors and screws of the power supply board, carefully lift it out of the camera set aside. The power supply board plugs into the board underneath by way of two multi-pinned connectors located near the corners of the board. You will feel resistance as you lift the board and pull the connectors apart. Pull the board straight up and out. A little wiggling is OK to overcome the resistance of the plugs that connect this board to the one underneath. Be careful not to bend the board too much and don't force it.



Once the power supply board is removed, locate the variable resistor RV1 on the digital board underneath. The two images above show the location of the variable resistor that controls the level of ABG protection. Click on the second image for the closest view of the board. The pot is fairly easy to identify. Using a small screw driver like a jewelers tool, turning the pot counter-clockwise. This will increase the level of antiblooming protection. Because this also reduces the full well capacity you should only turn it far enough to achieve the desired result and not go too far. We generally set it for maximum full well capacity and minimum ABG protection by rotating the pot fully clockwise. You can therefore increase the level of ABG protection by turning the pot 1/4 to 1/2 turn counter-clockwise. Try 1/4 turn first to see if this is sufficient. Set the pointer to the approximate position as seen in Figure 2 below. If, after trying it out for a while you determine this is not sufficient, turn the dial to point to the 12 o'clock position or a little beyond to the monogrammed "B" in the upper left hand corner. This should be more than enough. Warning: This is a surface mount component and is delicate. Normal adjustments are fine, but be aware that the dial has stops at approximately the 8 o'clock and 4 o'clock positions. Trying to turn the pot beyond these points can twist the component off the board.



**Default Position is fully clockwise (~4 o'clock)  
This is the factory setting for minimum ABG and maximum full well capacity.**

**Adjust 1/4 turn counter-clockwise for greater ABG protection and slightly less full well capacity. Increase to about 1/2 turn total if necessary**

The limits of adjustment are from about the 4 o'clock position to the 8 o'clock position  
Be careful not to force the dial beyond these two points or you may twist the component off the board

---

**Revised: March 02, 2005 02:21:45 PM.**

**Copyright © 2005 Santa Barbara Instrument Group, Inc. All rights reserved.**

**Please report any problems with this page directly to the [Webmaster](#)**