

Tips on lighting and exposure

The use of four ordinary 25 - 60 Watt matted light bulbs in matte white reflectors is recommended. Do not use fluorescent lights — they will cause flickering images, and also do not use mirrored reflectors, as they may cause "hot-spots" in the image. The lights should be positioned as shown above. The lamp fixtures should be adjustable. In that way it is possible to adjust the evenness of the lighting easily.

The camera lens needs no adjustment. It is prefocused for a distance of 20 cm (8"), but will give adequate sharpness over a wide range of distances from approx. 15 cm (6") to 40 cm (1 ft 4").

To determine the correct exposure, follow these steps:

- Place an average animation drawing under the camera lens, and adjust the lights to illuminate the drawing as evenly as possible.

- Choose either the color or black&white camera in the Main Display's "Camera" menu, then the "Adjust camera" command from the same menu. Then choose the highest contrast setting (NOT the "Filter" setting) with the buttons, and set the "Brightness" slider to mid-scale. If the image is completely white at this setting, your lights may be too bright or too close. If the image is all black, you may have to change to stronger light bulbs — the brightness slider should be kept within the mid-third of the scale to get the best possible image quality.

- Re-adjust brightness and contrast. With a suitable setting, you can bring out weak details in your drawings without heavier lines getting dark and blotchy. The filter setting help here, provided you have a color camera. Try to minimize the background raster, since it will make your files larger and slower when saving and loading. If your lighting is uneven, it may be impossible to get a clean white background over the whole picture area - you may get a picture that looks like one of the examples below. In each of these cases, the unevenness can be corrected by aligning the lights carefully. Set the contrast to medium, and adjust brightness so that you get a gray raster tone over the entire image. Adjust the lamps so that this gray screen is as even as possible. The first example below shows vertically uneven lighting (lamps not aligned to the center of the drawing), the following two examples show "hot-spots" due to shiny reflectors or too short distances between lamps and drawing. The last example shows lighting that usually can be adjusted by turning and/or moving the lamp fixtures.

lease remember: Setting the lights correctly greatly improves the quality of your recorded frames!

If you experience flickering (i.e. uneven brightness between different images) when playing your animation, your lights are probably too strong. With strong lights, the camera's brightness control sets a very short exposure time. Since all electric lights flicker at mains frequency (50 or 60 times a second, which is invisible to the human eye), a short exposure time may record the frame just when the light is unsteady. For this reason you should never use fluorescent light for shooting with ANIMAC — they flicker much more than ordinary light bulbs. Also note that a lower light level will even out any flickering thanks to a longer exposure time.

For this reason, the camera has a special filter internally attached in front of the CCD chip. (NOT IN LE VERSION, where an external filter is provided instead, to be installed by the user). This enables you to get longer exposure times under moderately bright lights. If your lights are very strong, you may have to attach an additional ND filter in front of the lens. An additional piece of ND 0.9 filter is included with ANIMAC. Attach this in front of the camera lens if your lights are too strong and you experience flickering in your animation.