

Frequently Asked Questions

HMI™ Color Facts

What are the color characteristics of OSRAM HMI™ lamps?

Lamp Color

OSRAM HMI™ type lamps have a color balance similar to photographic daylight. However, each lamp is slightly different, and the color balance slowly changes throughout the operating life of the lamp. These differences are significant where color is an important consideration. They are generally considered of greater importance for film than for video.

If the source of light for photography were only a single HMI type lamp, then filters on the camera could make color correction. Because multiple light sources are generally used, it is necessary to put filters on each HMI fixture. The proper procedure involves reading the **color balance** of the light output for each fixture with a color balance meter such as manufactured by Photo Research or Minolta in order to determine the correction required. Then a **light balancing filter** along the blue-amber range and/or a **color compensating filter** along the green-magenta range are chosen to bring the fixture to the desired balance. These filters should be labeled with the fixture identification and kept with that fixture throughout the production. The time change of a lamp is sufficiently slow that rebalancing should not be necessary in less than about 50 to 100 hours.

It must be noted that the fixture in which the HMI lamp is operated and the ballast on which the lamp is operated can have an effect on the color balance of a lamp. With most ballasts, the color balance of an HMI lamp varies with applied line voltage, the color temperature increasing as the voltage decreases and vice versa. Consequently, it is important to control voltage when color is a significant issue.

Measurement of Color

Color temperature is a description of the visual appearance of light. It is a good description of the photographic qualities for **incandescent lamps** and for **daylight**. However, the types of color variation found with HMI type lamps cannot be described by color temperature. While the color temperature must be near 5500°K for daylight film balance, it is not enough to say that an HMI lamp has a color temperature at 6000°K since the color balance still may not be correct. Color temperature does not indicate the balance between the red, green, and blue components in the light, a factor essential to color balance in film and video. It is necessary to use a color balance meter to evaluate the balance of the three components.

There is another very important point to recognize. Portable hand held color temperature meters will not correctly read the color temperature of HMI type lamps (nor of fluorescent and other arc discharge lamps). Such color temperature meters are only intended for use with incandescent lamps or daylight. It is necessary to use laboratory instruments to correctly determine the color temperature of an HMI lamp. The only portable hand held meter that can be used with HMI type lamps is the color balance meter giving two readings, one for the light balancing filter and one for the color compensation filter.

Color Balancing

The various meter manufacturers provide information relating their meter readings to the required photographic filters, usually in terms of the Kodak filter designations. This determines the filters when filtration can be introduced at the camera. Due to heat limitations, theatrical type filters are required for filtration at the HMI fixtures. For example, certain Rosco Cinegal filters have been equated to steps in the Wratten filter series. If filters without known equivalent filtration steps are used, the user can develop his own equivalent values, or these can be selected using judgment with checking by trial and error. When filtration is correct, the color balance meter will indicate that no correction is required.