FAQs

▼ About True Match® Lamps

What is the difference between Kino Flos and store bought fluorescents?
Kino Flo True Match® lamps are the only High Output (HO) fluorescent lamps designed to correspond to the spectral sensitivity of film and digital imaging. In 1995 Kino Flo was awarded an Academy Award for Technical Achievement for its unique lamp engineering and fixture designs.

Is there a color difference between Kino Flo lamps operating in an architectural fixture vs. a Kino Flo fixture?
Kino Flo's 4ft and 2ft T12 800ma lamps can be used in architectural fixtures. Due to the lower operating currents of architectural fixtures, the Kino Flo lamps may appear slightly more magenta to the eye than the same lamps in Kino Flo fixtures. However, on film, video or digital the light quality of the two fixture types matches.

What does High Output (HO) mean?
High Output (HO) is the term to describe lamps that are burning at a higher than Standard (Std) lamp current. Normal fluorescent lamp currents operate a lamp at between 280ma to 320ma. HO refers to lamps operating at or above 800ma. Lamps operating at 1500ma are referred to as Very High Output (VHO). Kino Flo Select ballasts can switch between HO / 4ft and Std / 2ft lamp operation.

Do Kino Flo lamps operate in architectural High Output (HO) fixtures?
Architectural HO fixtures can range in lengths of 4ft, 6ft and 8ft. They use a lamp that has a double recessed bi-pin end cap. It looks similar to a single pin lamp but the pin is hollow and oval shaped. Kino Flo 6ft and 8ft lamps can be modified with an accessory Double Recessed End Cap that slides over the lamp's normal medium bi-pins. However, Kino Flo 4ft lamps cannot be modified this way because architectural 4ft HO lamps are three inches shorter.

Why do some lamps in a fixture seem slightly different?
Slight variations in appearance are common from lamp to lamp. The age of a lamp and the batch number can account for variations. When evaluating color temperature, position the color meter at least 24 inches (.5 meter) from the fixture or lamp. Holding the meter too close may result in inaccurate readings.

Why do my lamps read green on my color meter?
In a fixture with restricted air flow, lamps can heat up and exceed the temperature operating range for good color. Lamps should never be fully enclosed with gel or diffusion. As the temperature of a lamp increases, so does the mercury pressure in the lamp. This increased mercury pressure appears as a blue green light. The higher the temperature the bluer and greener a lamp will appear.

Tip: If a 4ft lamp is operating too hot and the color is shifting green, move the select switch to Std (or 2ft). This will reduce the lamp current and drop the green spike.

How do color meters read fluorescent lamps?
Unfortunately, color meters available to cinematographers are far from being scientifically accurate when reading fluorescents. They act as a great comparative tool to determine differences between two given light sources but are inadequate in providing definitive data. You will rarely find two color meters, even if they are the same make and model that provide equal data. Results between meters may be similar but not identical.

Please visit www.KinoFlo.com for detailed information.

Dimming vs. Switching
All fluorescent lamps will drift toward magenta when dimmed. The shift is continual as the lamp physically cools. Kino Flo recommends only dimming one f-stop to ensure good color. The Select Ballast series changes light levels without affecting color balance by switching lamps on and off, and by using the 2ft / 4ft select switch, which adjusts the lamps by 1/2 f-stop.

What is the difference between single pin lamps and double pin lamps?
Single pin lamps are referred to as Slimline fluorescents. Slimline lamps will not operate on Kino Flo HO ballasts. Most double pin (bi-pin) lamps will operate on Kino Flo ballasts. However, Kino Flo HO ballasts will shorten the life span of store bought bi-pin lamps.

Can I mix KF32 & KF55 lamps in the same fixture?
Yes, the result will be white light at approximately 4500 Kelvin.

▼ About Ballasts

What is the select switch for?
The select switch is used to optimize lamp performance and color temperature. Four-foot lamps should operate at the 4ft setting. Two-foot lamps should operate at the 2ft setting. The select switch can also be used to control light output by switching a 4ft lamp from 4ft to 2ft in a 1/8 f-stop increment.

Caution: If a 2ft lamp operates in the 4ft setting, the color may turn green and not match the color of a 4ft lamp.

Tip: If a 4ft lamp is operating too hot and the color is shifting green, move the select switch to Std (or 2ft). This will reduce the lamp current and drop the green spike.

How many extensions can I run with Kino ballasts?
Do not exceed 3 x 25ft extensions. Using more extensions may result in lamp instability.

Can I shoot at 50Hz?
Kino Flo ballasts can operate at 50Hz, 60Hz and as high as 400Hz. When shooting in a 50Hz country, it will be important to use a 230VAC ballast or use a step down transformer. The Kino Flo ballast is designed to be flicker-free in either a 50Hz or 60Hz environment.

Can I use an inverter and battery pack to operate a Kino Flo ballast?
Kino Flo recommends a pure sine wave inverter. Inexpensive saw tooth or near sine wave inverters may not work.

FAQs

Can I shoot at any shutter speed and not get flicker?
Kino Flo ballasts are designed to be flicker-free at any shutter speed or shutter angle on film cameras. Depending on the model, Kino Flo ballasts operate between 25kHz and 48kHz essentially eliminating flicker. However, there is mounting evidence that electronic cameras display different image capture methodologies that may result in flicker from gas discharge sources and surprisingly even quartz lighting. With electronic cameras the flicker becomes evident at the time of capture. If flicker is observed, then it is essential to shoot within the standard flicker-free speed and shutter angle settings. It is always best to run a test prior to your shoot date.

Can I use Kino Flo ballasts on a dimmer board?
Kino Flo ballasts can operate through a dimmer board. Set the operating channel as a non-dim control. This enables the board to turn the ballast on or off. The lamps will not dim through the dimmer. If the ballast is dimmed on the dimmer, the lamps will strobe and go out. A DMX dimmer board can switch individual lamps on and off or dim certain models of fixtures through DMX commands.

Why is the neutral drawing more than the hot leg?
Kino Flo ballasts are generally not power factor corrected. They will draw double the current on the neutral from what is being drawn on the two hot legs. On large installations it may be necessary to double your neutral run so as not to exceed your cable capacity. The Diva-Lite, ParaBeam, BarFly Dimming, ParaZip and Imara series of fixtures are power factor corrected and do not need additional capacity on the neutral.

▼ About DMX

What is DMX?
DMX is an address protocol used to control lighting fixtures or other DMX enabled products from a lighting desk. On Kino Flo fixtures the DMX signal is used to turn lamps on/off within a fixture or dim lamps depending on the model. The individual fixtures are addressed and signal is jumpered from one unit to the next using 5-pin XLR DMX cables. Currently, Kino Flo uses DMX512/1990 protocol. A wide variety of lighting control consoles, controllers and other devices that output DMX signals can be used to connect to an even greater variety of lighting fixtures and accessories that can be controlled by DMX. DMX controlled lighting systems are used in many professional settings, including concert lighting, stage lighting, studio lighting, theme park attractions, and much more.

What are valid DMX Addresses?
Addresses between 001 and 512 are valid addresses. If a DMX address is set to 0 or 513 to 999, the fixture will not receive a DMX signal.

What happens when a Kino Flo fixture or ballast loses its DMX signal?
The fixture or ballast will hold its last DMX command. For this reason, it is important to turn a fixture or ballast off using DMX commands. For example, if you try to turn off the lights by turning off the dimmer board, the Kino Flo DMX fixtures will remember their last DMX command and stay on. The fixtures or ballasts require a DMX "Off" or "Black-Out" command in order to turn off.

How many fixtures can you put on one DMX run?
By following proper DMX cable routing techniques, as many as 100 fixtures can be jumpered on one DMX chain as long as the DMX cable run remains under 1000 feet (304m) or 40 x 25ft (7.6m) DMX cables.

When should I use an Opto-Isolator?
Opto-Isolators are recommended for DMX runs greater than 250ft. The Opto-Isolator provides complete electrical isolation between lighting consoles and associated dimmers when installed in the control line. The electrical connection is broken by using an Opto-Isolator which passes the control signal using a beam of light. Designed to protect the console from damage in the event of dimmer failure, the Opto-Isolator may also be used to eliminate ground loops, protect against lighting damage, and buffer the DMX signal at control line intersections (wyes).

Why do I need to terminate the last fixture at the end of the DMX line?
You have to terminate because missing or faulty termination is probably the biggest problem in DMX512 systems. EIA-485, the electrical basis for all versions of DMX512, requires the transmission line (i.e., the DMX512 data link) to be terminated. This is normally done with a resistance matching the characteristic impedance of the cable (see the 5-Pin XLR Cable FAQ) which is ideally matched to the circuitry. Most consoles and the input/output ports of splitters have built-in termination. Many receiving devices have a termination switch engaged when it is the end of the data link, disengaged when it is not at the end. Check the manufacturer documentation.

Note: Depending on the model, some Kino Flo products have a "Terminate" switch and some have a built-in "Auto Terminate" feature.

Can any connector besides a 5-Pin XLR be allowed for DMX?
No! Using anything besides the 5-Pin XLR connectors as prescribed in all versions of the DMX standard is not allowed and defeats the interoperability the standard is intended to provide. Equipment using a 3-Pin XLR connector is not compliant with the standard and should not be marked as such. In very special circumstances, the ANSI version of the standard allows for the use of a non-XLR style connector. One of the provisions for this is that the manufacturer must supply an adapter.

▼ About Blue/Green Screens

Blue Screen vs Green Screen?
In film, the determining factor may be the colors of the subject (contrast to screen). In television and video work, the color green has traditionally been used for chromakey work.

Why use Kino Flos to light a blue or green screen?
For the best results the screen needs to be lit evenly and with the best possible color saturation. Evenness is easily achieved using Kino Flos because of the soft quality of the light and the wide beam spread. The best saturation of color is achieved by using blue-spike lamps on bluescreens and green-spike lamps on greenscreens. It's not as much about how much light is used to light a screen, but rather what produces the best saturation of reflected blue or green light.

Other benefits of using Kino Flos?
Benefits include: ten times more light per watt than tungsten lighting; manual and DMX remote light level control without color shift; fast set-up; low power consumption; low heat; and cost savings from not using color gels.

Which fixtures should I use?
Because lighting screens is about evenness, you generally want to use bigger fixtures with the widest beam spread. For portability and versatility, 4ft/4Bank Systems and Image 45/85 DMX fixtures have been the most popular units for blue and green screen applications. However, depending on the size of the screen (especially in installations) Double Systems (4ft, 6ft, 8ft) and 4Banks (4ft, 6ft, 8ft) can be used. Sometimes choosing the appropriate fixture is based upon the size of the screen that needs to be lit. Bigger units covering more area become more economical. Diva-Lites with their smaller profile and ParaBeams with their more directional beam can also be used, but the results usually are not as efficient as Image fixtures.

Where do I place the fixtures?
When lighting blue or green screens, the rule of thumb is to place the fixtures in front at about half the distance of the screen height, with the fixtures tilted down at a 45° angle. For example, if the screen is 20ft (7m) high, the lights should be hung 8-10ft (3-3.5m) in front of the screen.

Image 85 fixtures are usually rigged in rows on 7ft (2m) centers. Image 45 and 4Bank fixtures are rigged in rows on 5ft (1.5m) centers. A row at the top and bottom of a screen will increase brightness of the blue/green reflected light. On screens higher than 20ft (7m), the light will be brighter and more evenly spread.

Is there light drop off in the middle of the screen?
Use a spot meter, not an incident meter to get readings. Our experience has been that if the fixtures are properly placed, we have not seen more than a 1/10th difference (spot meter) from top to bottom of screen. On 40ft (13m) screens, the screen is evenly lit having one row across the top and one row across the bottom. For taller screens 60-80ft (20-26m) an additional row may be placed at the top and angled more towards the center. Sometimes when units are placed on chain hoists, the lights can be moved to light the screen and still be out of camera view.

Do I need to light the subject separately from the screen?
Yes, the screen should be lit first to the light level required. Then, the subject should be lit separately.

What is the light level for the subject and the screen?
For best results shoot a density wedge test to determine exposure for the screen. Generally, people shoot at key for greenscreen, or underexpose the shot as much as ⅔ f-stop to 1 f-stop under key. Bluescreens are underexposed 1½ f-stop to 1⅔ f-stop below the key light level.

What should I use to light my subject?
You can choose any light for the subject. But once the screen has been lit, try to keep stray light off the screen. In many cases Kino Flos are used to illuminate the foreground subject because the soft quality of fluorescents drops off and doesn't spill unwanted light onto the screen.

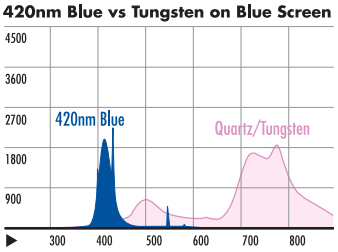
▼ About Lamp Choices

Which lamps should I use?
For lighting bluescreens, we recommend the 420nm blue lamp and for greenscreens we recommend the 525nm green lamp. Providers of blue and green screen material name their products differently, but in the end what counts is the quality of the reflected color.

If blue and green spike lamps display the best saturation, why not use them 100% of the time?
There are times when the subject is very close to the screen or standing on a cyclorama with a floor painted blue or green. In these cases where it is impossible to keep the light from contaminating the subject matter, we recommend using our KF32 (3200K) Lamps. The KF32 lamps deliver all the benefits of evenness, but they do not have as much contaminating red spectrum as tungsten hot lights.

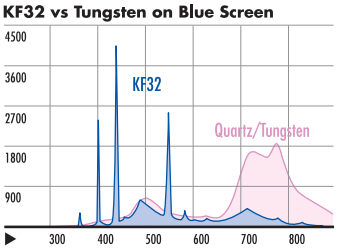
Blue Screen Option #1
Use 420nm blue lamps. The blue spike of this lamp is ideally suited for bluescreen. Before Kino Flo, tungsten light was used, but its broad spectral distribution does not saturate the screen as well as the 420nm blue lamp. Tungsten displays a high peak of contaminating red color between 670nm to 800nm making a clean blue layer exposure very difficult.

420nm Blue vs Tungsten on Blue Screen



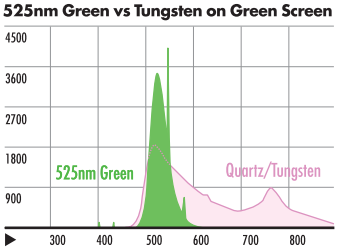
Blue Screen Option #2
Use KF32 (3200K) lamps when the subject matter is in direct contact with the bluescreen. The KF32 peaks slightly bluer at 490nm. The additional blue energy spikes at 404nm and 436nm further enhancing the ability of the KF32 to deliver superior blue layer exposure. Quartz/tungsten light has its blue energy peaking at 515nm. The KF32 has dramatically lower red energy making it better at cleanly exposing the blue layer of film. Quartz/tungsten has contaminating red energy between 670nm and 800nm.

KF32 vs Tungsten on Blue Screen



Green Screen Option #1
Use 525nm green lamps. The lamp has a narrow concentration of green between 500nm and 560nm. This highly efficient green source makes it ideal for clean green layer exposure. Quartz tungsten has a broad spectral distribution. Its green energy peaks between 490nm and 675nm with an undesirable rise in red contamination between 690nm and 800nm.

525nm Green vs Tungsten on Green Screen



Green Screen Option #2
Use KF32 lamps when the subject matter is in direct contact with the greenscreen. On greenscreen material, both quartz and Kino Flo's KF32 (3200K) follow very similar spectral distributions. The KF32 has an advantage over quartz due to its lower red spectrum response and because it has a slight green spike at 547nm. The green spike means you need less KF32 illumination than quartz to get the correct density on the green layer.

KF32 vs Tungsten on Green Screen