

Compact Fluorescent Lighting, How to Upgrade

Drs. Foster & Smith Educational Staff

THE SENSIBLE HIGH LIGHT OUTPUT CHOICE

DO YOUR LIGHT NEEDS
EXCEED
WHAT YOUR EXISTING
LIGHT FIXTURE CAN
OFFER?

To successfully keep aquatic plants or photosynthetic animals, it is often necessary to upgrade to a fixture that offers higher light output and a particular color temperature. Compact fluorescent light fixtures are a smart choice when upgrading from standard fluorescent systems.

WHAT ARE COMPACT FLUORESCENT LIGHT FIXTURES?

Compact fluorescent (CF) light fixtures use modified fluorescent lamps to optimize light output. Instead of standard, single tube fluorescent lamps, CF systems incorporate dual or quad tube lamps for greater light output from a single lamp. One CF light fixture can emit as much, or more, light than two traditional fluorescent light fixtures of comparable size. These versatile fixtures boast high light output paired with low operating cost, plus a wide selection of lamps with color temperatures ideal for both freshwater and marine aquariums. From the [9 watt Mini-Aqualights](#), all the way up to the 520 watt Orbit Extreme, there is a CF light fixture sure to suit the lighting needs of most aquarium systems.



CF LAMP STYLES AND OPTIONS

What make CF light fixtures truly versatile are the lamp choices available for these fixtures. A comprehensive lamp selection allows hobbyists to customize their CF fixture to produce ideal light conditions for their particular aquarium setup. As long as you keep CF fundamentals in mind, lamp selection does not have to be complicated. In general, CF lamps are categorized by pin configuration and by color temperature (K-rating).

STRAIGHT PIN VERSUS SQUARE PIN

All CF lamps (except "screw-in" mini CF bulbs) have a series of contact pins located on one side of the lamp. CF lamps are available in two distinct contact pin configurations. The contact pins are aligned either in a straight line or in a [square](#)



[configuration](#). CF lamps in the [straight pin](#) configuration are also called "German-style" CF lamps and the square pin lamps are also known as "Japanese-style" CF lamps.



While there are no significant differences between the two styles other than pin configuration, these lamps are not interchangeable. Each CF lamp type requires a light fixture specifically designed to receive the corresponding lamp type. Even if they are the same wattage, straight pin CF light fixtures are unable to accept square pin lamps and vice versa.

COLOR TEMPERATURE (K-RATING)

Lamp color temperature (K-rating) gives us insight to the appearance of the light emitted by the CF lamp. Lamps with lower K-ratings tend to produce light that appears "warm" while lamps with high K-ratings produce light that appears crisp and "cool." Sunlight at noon has a K-rating of 5500°K and contains a blend of all the colors of the light spectrum. For this reason, lamps in the 5500°K range are also referred to as full-spectrum lamps. Full-spectrum CF lamps are perfect for freshwater planted aquariums but can also be used in certain marine aquarium setups.

The most common CF lamps used in marine aquariums, including reef aquariums, are the 50/50 lamps. These lamps take advantage of the characteristic dual tube design of CF lamps and emit light with two notably different K-ratings. These combination lamps are extremely practical, saving both space and money by performing the job of two lamps. 50/50 lamps generally emit half 10000°K and half actinic light.

Since reef aquariums with photosynthetic corals have unique light requirements, the addition of actinic lamps is usually necessary to ensure proper coral growth. Actinic CF lamps emit light from the blue end of the color spectrum and simulate light conditions found in deeper water. Actinic CF lamps are often paired with daylight lamps with high K-ratings (10000°K or higher) and are timer controlled to recreate dawn and dusk light conditions. Dual lamp CF light fixtures such as the Orbit Extreme, or the Aqualight Double, are ideal for reef aquarium use. Through independent timer operation, actinic CF lamps are activated one hour before the daylight lamps and are shut off one hour after the daylight lamps go off to simulate a natural light cycle.



To make CF light fixture selection easy,



manufacturers offer complete light systems. These systems include CF lamps that provide optimum light conditions whether you have a freshwater or marine aquarium. Simply look for the CF light fixture that satisfies your wattage and color temperature requirements and you're on your way to a brighter and more productive aquarium hobby.