Halco LIGHTING TECHNOLOGIES
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White Paper:

Dimmable Compact Fluorescent Lamps

Halco Lighting Technologies has spent a significant amount of time and effort researching dimmable CFLs before we committed a product to the market. We believe that the dimmable CFL that we now offer our customer to be the best in the market, but it is important to remember that CFLs do still have limitations in relation to the incandescents to which they will be compared.

Operating Characteristics:
As all CFLs, our dimmable CFLs require a 60 second run up time to achieve full brightness, as well as have temperature limitations at both extremes. Specific to our dimmable CFL models is that they must be used on modern analog dimmers, which includes all models manufactured after 1995. They will not work on digital dimmers, which although uncommon, may still be found in certain situations, particularly new commercial installations.

Dimmable CFLs will not dim to 0% as their incandescent counterparts, which is due to the technology involved. A CFL functions using the same technology as fluorescent lighting, which requires that an arc be maintained between the cathodes. A certain amount of power is required to maintain this arc. There is also power that is consumed in the operation of the ballast. Due to the power consumed by these two items, a dimmable CFL is unable to dim to 0%.

Light Output:
The effect of a dimmed CFL on an environment is also different than the aesthetics provided by a dimmed incandescent. When an incandescent lamp is dimmed, it not only reduces the light output but also the other characteristics of the light, which creates the romantic glow that one expects in a dimly lit restaurant. A dimmed CFL only reduces the amount of light; the CRI, color temperature and all other characteristics remain constant.

Similar to an incandescent lamp, the light output of our dimmable CFLs are directly proportional to the input power of the lamp once this input is normalized for the power consumption of the ballast. Meaning, that at 50% of the input power, excluding the wattage that is consumed by the ballast, you will get 50% of the light output. However, the power consumed by the ballast of course cannot be removed, so it is important to take this factor into consideration when operating the lamp.

Dimming Characteristics:
During normal operation of the lamp there are also certain times when the lamp will flicker. This flicker is standard for a dimmable CFL and indicates that the lamp is yet to reach a stable state. This can be expected to occur when the input power to the lamp is being adjusted as the arc is stabilizing. Also, during extremely low dimming situations this indicates that the lamp is not receiving enough power to steadily maintain the arc and the lamp requires more power. Just below this low level at which the lamp flickers, the ballast will automatically shut off due to lack of power. If a lamp is left in a condition in which it continuously flickers, this will lead to failure as it creates a scenario equivalent to continuously turning the lamp on and off.

If dimmed correctly using the proper equipment and left in a stable state at all times, dimming of a CFL lamp will not reduce its average rated life. In situations where the lamp is allowed to flicker constantly or a non-approved dimmer is used, dimming may affect the life of the lamp.

It is important to note that dimming to 0% should not be used as a standard method to turn off the lamp as this still allows for some power to travel through the line. To turn off the lamp, it is important to move the switch into the off position.

Conclusion:
When operated within the guidelines provided and on equipment that the lamp is designed for, Halco Lighting Technologies' ProLume dimmable CFLs offer an energy saving alternative to incandescent lighting. It is essential to take into consideration the limitations of the product when choosing a lighting solution, as these lamps are not ideal for all situations. For additional technical details or information please contact Halco Lighting Technologies or visit our website at www.halcolighting.com.

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