



LED Dimming:

All LEDs are dimmable. But a system of electronics is required to operate LEDs, and not all LED systems allow dimming.

Dimming is typically accomplished via a Pulse Width Modulation (PWM) controller or a linear power supply. PWM is the preferred method in most cases, but requires additional components and signal circuits. Linear power supplies offer an effective, simpler setup at the cost of precision and sometimes compatibility.

Consult an experienced LED specialist to validate your intended dimming application.

Dimming Controllers:

Low voltage microchip-based dimmers require a certain minimum amount of current in the circuit to power their internal electronics. Without enough power, the microchip cannot function or, in some cases, will not function properly.

There are 2 common microchip-based line dimmer versions in the market – those with and those without neutral wire connection. Without a neutral connection, 2-wire microchip dimmers limit and dim power on a “hot” wire leg and require the circuit be on to power both the lighting and the dimmer (the other wire is to ground). Most of these are versatile enough to handle larger loads, some upwards of 600 watts, for other technologies and larger circuits. When these are employed in an efficient LED system with, say, just 60 watts (like in a Class II setup), many will fail to dim or dim properly. Such a system is working within just the first 10% of the dimmer’s capacity (60/600) where the least precision and function exists, and the microchip is likely underpowered.

In microchip dimmers with neutral wire connections, a third connection (hot, ground AND neutral) closes the power circuit to the dimmer and provides constant power regardless to the load. These dimmers are typically successfully employed for dimming the same LED lighting system where a 2-wire fails.

Of course, there are additional methods of dimming and control, and so it is important to consider all aspects of the lighting components, power supply and control interface to accomplish proper dimming. Good specification will integrate the system and not just list its components.