Dimming eW Powercore and eColor Powercore Fixtures

Application Note
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Introduction

Solid white and solid color LED lighting fixtures in the eW Powercore and eColor Powercore families from Philips Color Kinetics can be switched (turned on and off) or dimmed. While switching is straightforward with standard wall switches, you must take some care in selecting dimmers, as eW Powercore and eColor Powercore lighting fixtures are compatible only with certain dimmer types.

eW Flex SLX, eW Accent MX Powercore, and eW Reach Powercore LED lighting fixtures from Philips Color Kinetics are controlled with DMX512 and Ethernet lighting controllers, rather than with switches and dimmers.

Selecting the Correct Dimmer Type

In general, eW Powercore and eColor Powercore fixtures should be dimmed using *reverse-phase control* (trailing-edge) dimmers. These dimmers are made for use with electronic low voltage (ELV) transformers, which are used in Philips Color Kinetics LED lighting fixtures. While "reverse-phase control" and "ELV" are often used synonymously, they are not equivalent. "Reverse-phase control" describes a method of dimming, while "ELV" describes a type of load. This distinction is important to keep in mind, as some dimmers designed for ELV loads use forward-phase control, which should not be used for dimming eW Powercore and eColor Powercore fixtures.

Selected dimming manufacturers, including Philips Strand, offer specification-grade reverse-phase dimming solutions for 100 V, 110 V, 120 V, 220 V, 240 V, and 277 V loads which work well with Philips Color Kinetics products.

You should never use forward-phase dimmers with Philips Color Kinetics products. Repetitive voltage peaks from a forward-phase dimmer can exceed 150% of nominal sine wave maximum, which can damage Philips Color Kinetics fixtures.

DO
DO use reverse-phase (trailing-edge) ELV-type dimmers with Philips Color Kinetics LED lighting fixtures
DO verify that an ELV-type dimmer is reverse-phase (trailing-edge), and not forward phase (leading-edge)
DO follow dimmer manufacturer guidelines for calculating minimum dimmer wattage and proper installation
DO test all dimmer / fixture combinations prior to permanent installation

DO NOT
DO NOT use forward-phase (leading-edge) ELV-type dimmers with Philips Color Kinetics LED lighting fixtures
DO NOT use magnetic low-voltage (MLV-type) dimmers with Philips Color Kinetics LED lighting fixtures
DO NOT use and install dimmer / fixture combinations that you have not tested

Which Dimmer Can I Use?

Some leading makers of lighting controls test specific dimmers with integrated LED lighting fixtures, and post a list of tested and approved dimmer / fixture combinations on their websites.

While such information can help you to make an informed purchasing decision, continuous improvements and innovations to both dimmers and LED lighting fixtures may introduce incompatibilities and unexpected behaviors. Such behaviors include reduced range (top and bottom), pop-on, drop-out, flicker, dead travel, and audible noise. We therefore strongly recommend that you test dimmers with your specific Philips Color Kinetics LED lighting solution prior to permanent installation. (Most leading makers of lighting controls accommodate customer requests for dimmer / fixture compatibility testing at their facilities.)

Follow the dimmer manufacturer's instructions for calculating minimum dimmer wattage for your specific lighting installation, and for proper installation and configuration.

The National Electrical Manufacturers Association (NEMA) published standard SSL 6-2010, Solid State Lighting for Incandescent Replacement—Dimming, *in February 2011. Dimming standards for integrated LED lighting fixtures, such as those made by Philips Color Kinetics, have not yet emerged.*

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