Dimming Application Sheet

This guide answers typical questions encountered by LSI about dimming our LumeLEX, BPL, LP and UV Series product families – Examples: LX2044, LX2047, LX2060, LX2084, LP1, BPL.

Dimming will not negatively affect the already long life expectancy of our product, in fact, it will actually increase the life of the LED due to the reduced temperature and drive current of the LED. Dimming will not negatively affect the color or quality of the light from our product. Additionally, the color shift associated with dimming is almost eliminated in LED's; except for the intentional effect in the Dim to Warm series.

Dimming of LED's is significantly different than dimming traditional incandescent lights. First, due to the low wattage of the LED fixture, some dimmers require multiple LED fixtures on one circuit in order to dim properly. If the light turns off or a fixture flickers, add more fixtures to that circuit, as the dimmer (not the fixture) has a minimum load requirement. Second, due to the electronic LED driver, the total load of the circuit when dimming will not reduce proportionately to the lighting level – the drivers still require a certain amount of wattage to function. Finally, in-rush current for the fixtures must be kept within the limits of the dimmer. Lutron recommends treating LED fixtures as 100W each to avoid damage to their dimmers.

All LumeLEX™, BPL, LP, and UV Series Fixtures can be specified compatible with various dimming technologies:

"TE" - **Standard:** Trailing Edge / Reverse Phase / Electronic Dimmers Low-Voltage
"ED" - Integral: on-board integral dimmer
"LT" - LumenTalk™ Enabled: Digital data over power dimming solution
"LE" - Leading Edge – Leading Edge / Forward Phase / TRIAC Dimmers
"L2" - Lutron® LTE® – Lutron Leading Edge, 2-wire Forward Phase Dimming
"L3" - Lutron® L3D® - Lutron digital dimming, 2-wire power plus 2-wire dimming
"10" - 0-10V: Analogue 2-wire
"DX" - DMX: DMX or RDM input, 2 wire digital dimming, local addressing, and local dimming options.

Note: Not all LSI products can be specified with every dimming/fitting option, please review catalogue or specification drawings for options.

The table below shows the expected dimming values for each fixture/dimming combination. Note that these are minimum values, and local conditions such as load and dimmer selection will influence the dimming performance.

Dimming Performance	TE	LE [2]	ED	LT	L2 [2]	L3 [3]	10 [3]	DX [4]
LX2020, LX2030, LX2031, LX2038 [2]	10%	N/A	N/A	N/A	N/A	N/A	N/A	1%
LX2024, LX2044, LX2047, LX2048, LX2060	5%	5%	10%	1%	N/A	N/A	10%	1%
LX2026	5%	5%	10%	1%	1%	1%	10%	1%
LX2084, LX2087	5% [1]	5% [1]	10%	1%	1%	1%	10%	1%
BPL	5%	5%	10%	1%	N/A	N/A	10%	1%
LP2, LPW8, UV90, UV1560	5%	5%	10%	1%	1%	1%	10%	1%
LP1, UV8	5%	5%	10%	1%	N/A	N/A	10%	1%

1: 3000Lm 83CRI, 3000Lm 98CRI, 4000Lm 83CRI, 5000Lm 83CRI dim to 10%
2: 120V only
3: This dimming scheme requires additional wires and is not avalable on track fittings
4: Standard on LP1, LP2, UV8, UV90, UV1560 only, consult factory for other models

The remainder of this dimming application sheet is specific to the dimming system specified:

"TE" – Standard Trailing Edge: Most LSI LED fixtures are compatible Trailing Edge dimming as standard, these fixtures use drivers that are controlled using the trailing edge of the input power. These drivers are compatible with most electronic low-voltage electronic dimmers that use TRAILING EDGE or REVERSE PHASE dimming. LED and Low-voltage fixtures can be mixed on the same track circuit, but the correct dimmer for the given load must be used. The total load must not exceed the dimmers capacity. Do not use products with magnetic transformers on the same track circuit.

DO NOT USE WITH regular INCANDESCENT or FLUORESCENT dimmers.
DO NOT USE WITH LEADING EDGE, FORWARD PHASE, or TRIAC dimmers.
See chart below for recommended electronic Low-Voltage dimmers:

Series	Model	Power	Series	Model	Power
LUTRON *Skylark*			LUTRON *Interface*		
Single Pole	SELV-300P	300W		ELVI-1000	
3-Way	SELV-303P	300W			
LUTRON *Diva*			LEVITON *Surslide*		
Single Pole	DVELV-300P	300W	Single Pole	R02-06615-P0W	600W
3-Way	DVELV-303P	300W	3-Way	R02-06615-P0W	600W
LUTRON *Maestro*			LEVITON *Vizia*		
Single Pole	MAELV-600	600W	Single Pole	VZE06-1LZ	600W
LUTRON *Nova*			3-Way	VZE06-1LZ	600W
Single Pole	NELV-450	450W			

"ED" – Integral Dimmer: On board dimming fixtures feature a potentiometer that adjusts the light level of the LED via an integral circuit on the fixture. Most fixtures house the potentiometer in a special track fitting and must be specified as such. (I.E. an LX2044-xxxx-00-TE120W with an integrated dimmer becomes an LX2044-xxxx-0E-ED120W). **DO NOT USE FIXTURES WITH INTEGRAL DIMMERS ON CIRCUITS THAT ARE DIMMED** (Do not dim a dimmer, as it may damage the fixture or dimming system).

"LT" – LumenTalk™ Enabled: LumenTalk™ allows for individual addressing and control of fixtures over legacy track without expensive retrofitting. See the LumenTalk™ specification guidelines for more information. **DO NOT USE LUMENTALK ENABLED FIXTURES ON CIRQUITS THAT ARE DIMMED BY OTHER MEANS** (Do not dim a dimmer as it may damage the fixture or dimming system).

"LE" – Leading Edge: The other type of 2 wire dimming is Leading Edge dimming. Fixtures specified with LE dimming come equipped with drivers that are controlled using the leading edge of the input power and are compatible with Leading Edge / Forward Phase / Triac type dimmers. LE available on 120V only.

"L2" – Lutron LTE: Most LSI fixtures are compatible with Lutron dimming. When a fixture is specified with "L2" in the part number, it is equipped with a Lutron Hi-Lume A-Series **LTE** Driver that can be used with 2-wire forward phase control dimmers. Lutron LTE is available in 120V only.

"L3" – Lutron L3D: Most LSI fixtures are also compatible with the other Lutron dimming scheme. Fixtures specified with "L3" in the part number are equipped with a Lutron Hi-Lume A-Series **L3D** Driver that can be used with 3-wire (Orange HOT –DIM) or 2-purple digital Eco-system control dimmers.

"10" – 0-10V: All LSI LED fixtures can also be compatible with 0-10V dimmers, these fixtures feature a driver utilizing 0-10V analogue dimming. These fixtures can be used with 2-wire (purple and gray) dimmers and do not dim to off.

"DX" – DMX: Some fixtures can be specified with "DX" in the part number, they are equipped with LSI DMX dimming. The fixtures are compatible with both DMX and RDM inputs. They feature 5 pin XLR connectors for input and pass-through. The fixtures can be addressed locally or via RDM. Additionally the fixtures can be dimmed locally at the fixture, overriding any DMX input.