

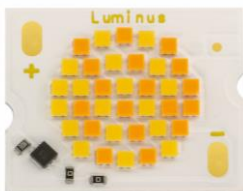
# Dim-to-Warm & Dynamic CCT Modules

## AMBIANCE / DRAMA / PREFERENCE / WELLBEING / CONTROL

Dim-to-warm and Dynamic CCT are highly sought-after illumination capabilities. If you've ever dimmed an incandescent or halogen lamp, then you're familiar with the dim-to-warm effect. As the light is dimmed, the color transitions smoothly to a warmer amber color that many compare to candlelight and think of it as warm, comforting, and even romantic. It's a very desired look in the hospitality industry. Luminus Dim-to-Warm modules recreate this familiar behavior with LEDs.

Dynamic CCT modules are similar to dim-to-warm modules in that they too use arrays of multiple LEDs of different white tones. However, with Dynamic CCT modules, both the dimming and the color change can be controlled by the lighting designer or end-user. For instance, one can dim without changing color, change color without dimming, or create virtually any custom scene between a range of color temperatures and dimming levels.

In a restaurant, movie theatre, hotel lobby, or bar, it's likely that a dim-to-warm solution would be the appropriate choice. In an office setting or a classroom where the preference might be to mimic daylight shifts or apply human centric lighting, a Dynamic CCT solution is more likely to be appropriate and will give the lighting designer and end-users total control over the intensity and color temperature of the illumination.

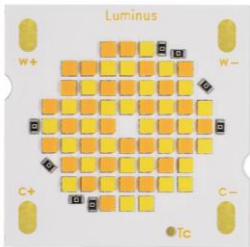


*Dim-to-Warm modules replicate the behavior of traditional bulb technology by changing CCT from 3000K to 1800K or from 4000K to 2700K as they are being dimmed. Luminus is the only LED supplier offering a choice of dimming curves, with either halogen-like or linear-style effects available across all four LES options and both CCT ranges. These UL listed modules have 9000-hour LM-80 data at 250mA per LED with L90>36k hours to enable DLC premium.*

LES	Luminous Efficacy @85°C	Typical Flux @ T <sub>j</sub> =85	CRI (min)	CCT @ over 80% Flux	CCT Range
6 mm LES	92 lm/W	490 lm	90	3000 K	3000K to 1800 K
6 mm LES	98 lm/W	525 lm	92	4000 K	4000K to 2700K
9 mm LES	87 lm/W	925 lm	95	3000 K	3000K to 1800 K
9 mm LES	98 lm/W	1040 lm	92	4000 K	4000K to 2700K
14 mm LES	87 lm/W	1850 lm	95	3000 K	3000K to 1800 K
14 mm LES	98 lm/W	2085 lm	92	4000 K	4000K to 2700K
18 mm LES	90 lm/W	2875 lm	95	3000 K	3000K to 1800 K
18 mm LES	100 lm/W	3190 lm	92	4000 K	4000K to 2700K

# Dim-to-Warm & Dynamic CCT Modules

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Luminus Dynamic CCT Modules offer a choice of 9, 14, 18, and 22mm LES options, all with two independent channels (warm and cool) to deliver CCTs ranging from 6500K to 2700K or from 4000K to 1800K. This wide range of options provides luminaire makers with flexibility in designing human centric lighting applications with independent CCT and dimming control. These UL listed modules have 9000-hour LM-80 data at 250mA per LED with L90>36k hours to enable DLC premium.

LES	CRI (min)	Dimming Range	CCT Range	Nominal Lumens @ Tj=85°C
9 mm LES	90	0.1% – 100%	4000K to 1800K	685 lm to 405 lm
9 mm LES	90	0.1% – 100%	6500K to 2700K	710 lm to 615 lm
14 mm LES	90	0.1% – 100%	4000K to 1800K	1370 lm to 825 lm
14 mm LES	90	0.1% – 100%	6500K to 2700K	1420 lm to 1255 lm
18 mm LES	90	0.1% – 100%	4000K to 1800K	1950 lm to 1180 lm
18 mm LES	90	0.1% – 100%	6500K to 2700K	2000 lm to 1785 lm
22 mm LES	90	0.1% – 100%	4000K to 1800K	3100 lm to 1875 lm
22 mm LES	90	0.1% – 100%	6500K to 2700K	3160 lm to 2840 lm

## About Luminus

Luminus, Inc. develops and markets solid-state lighting solutions (SSL) to help its customers migrate from conventional lamp technologies to long-life and energy-efficient LED illumination. Combining technology originated from the Massachusetts Institute of Technology (MIT) with innovation from Silicon Valley, Luminus offers a comprehensive range of LED solutions for global lighting markets as well as high-output specialty lighting solutions for performance-driven markets including consumer displays, entertainment lighting and medical applications. Luminus is headquartered in Sunnyvale, California. For additional information please visit [www.luminus.com](http://www.luminus.com).