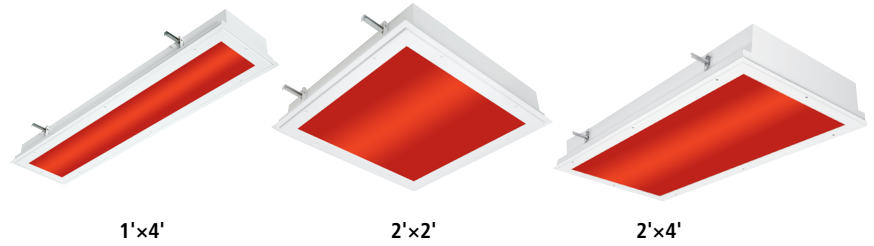


# SIMPLESEAL™ NARROW SPECTRUM

## CSEDI SERIES – RED & BIOS SkyBlue™ – INSET DOOR

### PRODUCT FEATURES:

- » Features BIOS SkyBlue Technology to benefit daytime alertness, cognition, mood and circadian rhythms
- » Narrow-spectrum 630nm red LED circuit provides only high-purity light for spectrally-sensitive applications
- » Diffused high-efficiency lens for reduced glare
- » One-piece inset doorframe, secured to housing with aircraft cables
- » Suitable for universal installation into 1.0" and 1.5" grid or flange (drywall) ceilings



### SPECIFICATIONS

**HOUSING:** Standard 24-gauge (optional 20-gauge) cold rolled steel, hole-free, one-piece, seam-welded construction. 18-gauge housing flange with mitered and welded corners. White TGIC polyester powder coat finish – 5-step pre-treatment. Salt spray test: 1,000 hours; Reflectance: 92%.

**DOORFRAME:** 18-gauge CRS. One-piece inset-style construction with welded corners. Gloss white TGIC polyester powder coat finish with 5-stage pre-treatment. Doorframe secured to housing with stainless steel aircraft cables and captive, flush-mounted Phillips-head fasteners. Closed-cell silicone gasket seals doorframe to housing.

**OPTICS:** Symmetric optic includes diffused, impact-resistant acrylic lens.

**LED MODULE:** BIOS: Serviceable static, dynamic or tunable mid-power Gen 2 BIOS Biological LED modules. Biological Static, Biological Dynamic, and Biological Tunable LED source with blue spectrum peak at 490nm and higher melanopic ratio. CRI 80+ with R9 > 90. Biological Dynamic features 500K downward CCT shift when dimmed for evening applications requiring lower melanopic ratio. Biological Tunable features 2700K CCT for evening applications. Refer to table for specific melanopic values. Red: Serviceable 630nm red mid-power LED array (16nm FWHM bandwidth).

**DRIVER:** 120-277VAC, 50/60Hz electrical input (PF ≥ 0.9, THD < 20%). **Biological Static:** Serviceable, constant-current single channel driver with single analog (0-10V) control input for intensity, 1-100% range with dim to dark capabilities and a linear dimming curve. **Biological Dynamic:** Serviceable constant-current driver with the BIOS Dynamic Bio-Dimming™ module keeps light output constant while reducing melanopic lux. Single analog (0-10V) control input. 1-100% dimming range with dim-to-dark capabilities and a linear dimming curve. Dimming from 100-75% reduces CCT by 500K, dimming below 75% reduces light level. **Biological Tunable:** Serviceable, constant-current multi-channel programmable driver with dual analog (0-10V) control inputs for intensity and CCT. Optional DALI (Type 8) driver. Logarithmic intensity profile with 0.1-100% range, with dim-to-dark capabilities. Linear profile on CCT adjustment. Red: Serviceable constant-current programmable driver. Dimming protocol matches BIOS Biological circuit selection: 0-10V dimming with 1-100% range and dim-to-dark capabilities or DALI with 1-100% range and dim-to-dark capability

**INSTALLATION:** Non-IC recessed ceiling mounting into grid and flange application types. Flange installation utilizes included adjustable swing-out mounting brackets. Grid installation suitable for 1" and 1.5" T-bar ceilings. Universal installation into grid or flange (drywall) ceiling applications. See Options for continuous row mounting and install frames.

**PHOTOMETRICS:** Photometry tested to the IESNA LM-79-08 standard. For additional photometric data, please go to [www.kenall.com](http://www.kenall.com)

**WARRANTY:** Limited five (5) year warranty.

**LISTINGS:** Luminaire is certified to UL standards by Intertek Testing Laboratories for Wet Location. Certified IP65 per IEC 60598. NSF2 Splash/Non-Food Zone. CCEA Approved. Meets K230 Leakage Standard for luminaire leakage in pressurized environments and FED-STD-209E/Class 1 (ISO 3) Cleanrooms. Suitable for BSL 1-2 laboratories. Suitable for EU GMP Grade A cleanrooms.



### ORDERING INFORMATION (Ex: CSEDI-24-23RD/67B-40K8-DIM1-DV-2F-2H-SYM)

Model	Size	Lamp Power	Lamp Color	Driver	Voltage	Doorframe	Housing	Optics	Options
<b>CSEDI</b>								<b>SYM</b>	
<b>Size</b>		<b>Lamp Power</b>		<b>Voltage</b>		<b>Options</b>			
14	1'x4'	1'x4'		DV	120-277VAC, 50/60Hz	LEL <sup>▲</sup>	10W Emergency Battery Pack		
22	2'x2'	23R/45B	23W Red/45W BIOS	120	120VAC	20KV	20KV/KA Surge Protection per IEEE/ANSI C62.41.2 Cat. A		
24	2'x4'	23R/67B*	23W Red/67W BIOS	277	277VAC	AMF <sup>▼</sup>	Antimicrobial Finish		
		2'x2'				FS	Fuse & Holder		
		23RD/45BD	23W Red/45W BIOS Dual-Row			HJ	Sealed Wireway		
		23RD/67B	23W Red/67W BIOS			RF <sup>•</sup>	Radio Frequency Filter		
		2'x4'				RM <sup>†</sup>	Continuous Row Mounting		
		23RD/67B	23W Red/67W BIOS					<b>Accessories</b>	
		23RD/90B	23W Red/90W BIOS					IF <sup>†</sup>	Install Frame
		23RD/135B*	23W Red/135W BIOS						
		<b>Lamp Color</b>							
		35K8	3500K SkyBlue / 80CRI min / R9 90+						
		40K8	4000K SkyBlue / 80CRI min / R9 90+						
		<b>Driver Type</b>							
		DIM1	BIOS Biological Static with 0-10V Dimming to 1% with Dim-to-Dark Capabilities						
		BIODIM1	BIOS Biological Dynamic with 0-10V Intensity Dimming to 1% and Dim-to-Dark Capabilities						
		ATW	BIOS Biological Tunable White with 0-10V Control of Intensity and CCT independently on 2 separate channels						
		DTW	BIOS Biological Tunable White with DALI Control of Intensity and CCT independently on 2 separate channels						
				<b>Doorframe Options</b>					
				2F	18-Ga CRS (STD)				
				5F	20-Ga Type 304 SS Brushed				
				AF	Anodized Aluminum				
				PAF	Painted Fabricated Aluminum				
				<b>Housing Options</b>					
				4H	24-Ga CRS (STD)				
				2H	20-Ga CRS				
				5H	20-Ga Type 304 SS				
				PAH	.050" Painted Aluminum				
				<b>Optics</b>					
				SYM	Symmetric, Diffused DR Acrylic				



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## CSEDI SERIES – RED & BIOS SkyBlue™ – INSET DOOR

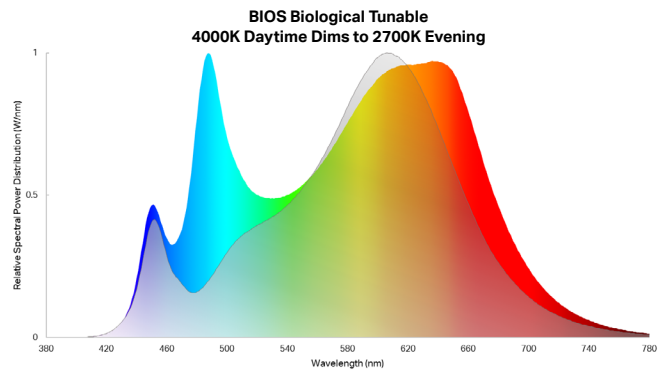
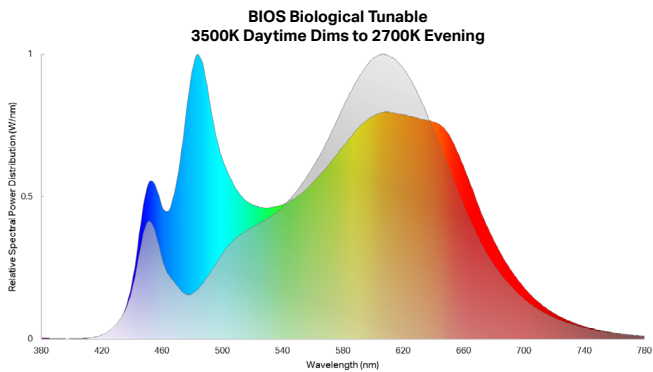
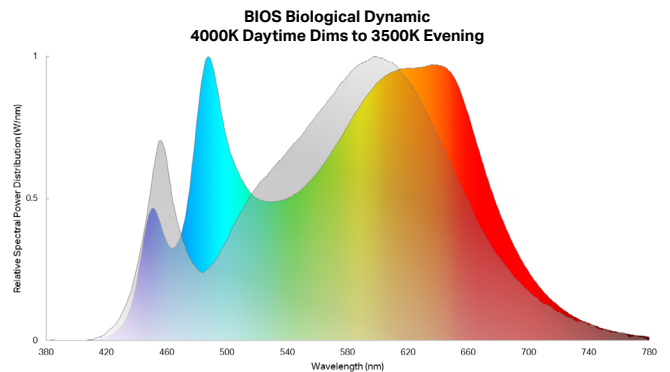
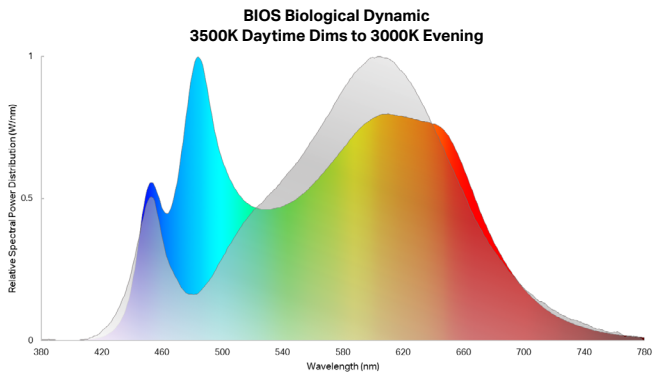
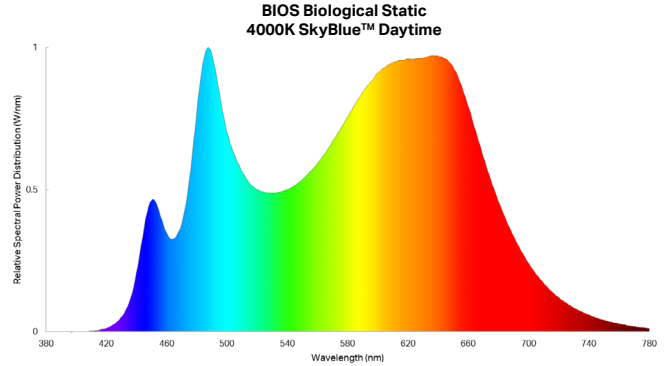
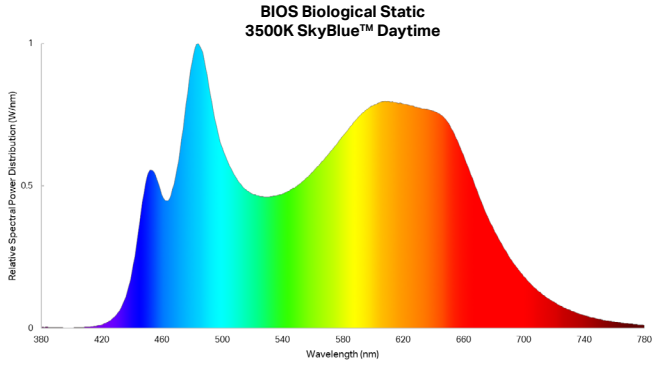
### DELIVERED MELANOPIC RATIO OF 35K8 BIOS

BIOS Type	Spectral Mode	Nominal CCT	Melanopic Ratio*	
			m-EER	m-DER
Biological Static	Daytime	3500K	≥0.80	≥0.72
Biological Dynamic	Daytime	3500K	≥0.80	≥0.72
	Evening	3000K	≤0.49	≤0.44
Biological Tunable	Daytime	3500K	≥0.80	≥0.72
	Evening	2700K	≤0.47	≤0.42

### DELIVERED MELANOPIC RATIO OF 40K8 BIOS

BIOS Type	Spectral Mode	Nominal CCT	Melanopic Ratio*	
			m-EER	m-DER
Biological Static	Daytime	4000K	≥0.90	≥0.81
Biological Dynamic	Daytime	4000K	≥0.90	≥0.81
	Evening	3500K	≤0.57	≤0.51
Biological Tunable	Daytime	4000K	≥0.90	≥0.81
	Evening	2700K	≤0.47	≤0.42

\*Melanopic ratios are provided in two forms: (m-EER) which is calculated using the WELL v2 methodology and the corresponding CIE melanopic Daylight Equivalent Ratio, (m-DER).



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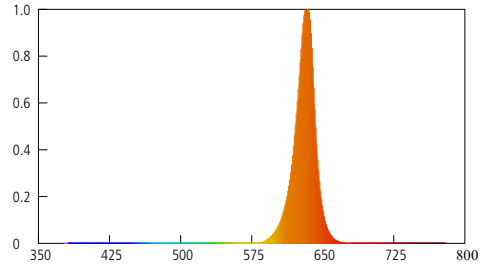
### PERFORMANCE

#### CSEDI Red w/BIOS

Size	Lamp Code	Red LED Circuit			BIOS LED Circuit			Estd. L <sub>70</sub> LED Life: Red/White (hrs)
		Initial Delivered Lumens		Input Power (W)	Initial Delivered Lumens		Input Power (W)	
		Flux @ 25°C (lm)	Efficacy (lm/W)		Flux @ 25°C (lm)	Efficacy (lm/W)		
1' x 4'	23R/45B-35K8	1,019	46	22	4,322	88	49	36,000 / 80,000
	23R/45B-40K8				4,693	96		
	23R/67B-35K8				6,621	92	72	
	23R/67B-40K8				7,190	100		
2' x 2'	23RD/45BD-35K8	993	45	22	4,181	85	49	36,000 / 80,000
	23RD/45BD-40K8				4,539	93		
	23RD/67B-35K8				6,404	89	72	
	23RD/67B-40K8				6,954	97		
2' x 4'	23RD/67B-35K8	1,108	50	22	6,941	96	72	36,000 / 80,000
	23RD/67B-40K8				7,416	103		
	23RD/90B-35K8				8,776	90	98	
	23RD/90B-40K8				9,529	97		
	23RD/135B-35K8				12,440	85	147	
	23RD/135B-40K8				13,508	92		

Subject to change without notice. Visit [www.kenall.com](http://www.kenall.com) for .ies files and additional information

#### Red Circuit Spectral Power Distribution (SPD)



Purity: 1.0  
 UV: 0.0000% (<390nm)  
 Radiant Flux < 575nm: 0.000%  
 Bandwidth: 16nm  
 Peak Wavelength: 630nm



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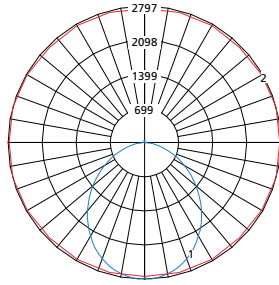
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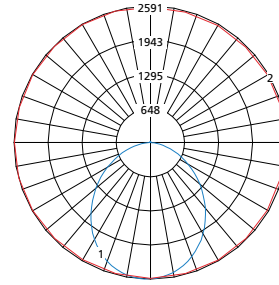
### PERFORMANCE

Model: CSEDI14-23R/67B-35K8-DIM1-DV-2F-2H-SYM (White Mode)



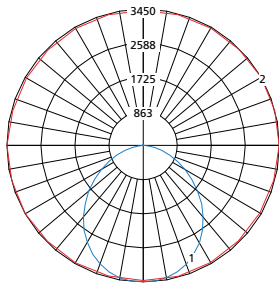
Maximum Candela = 2797 Located At Horizontal Angle = 15, Vertical Angle = 2.5  
 1 - Vertical Plane Through Horizontal Angles (15-195) (Through Max. Cd.)  
 2 - Horizontal Cone Through Vertical Angle (2.5) (Through Max. Cd.)

Model: CSEDI22-23RD/67B-35K8-DIM1-DV-2F-2H-SYM (White Mode)



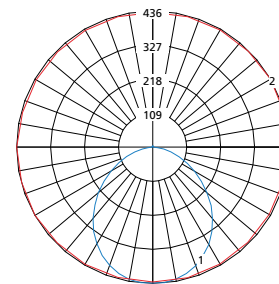
Maximum Candela = 2591 Located At Horizontal Angle = 195, Vertical Angle = 2.5  
 1 - Vertical Plane Through Horizontal Angles (195-15) (Through Max. Cd.)  
 2 - Horizontal Cone Through Vertical Angle (2.5) (Through Max. Cd.)

Model: CSEDI24-23RD/90B-35K8-DIM1-DV-2F-2H-SYM (White Mode)



Maximum Candela = 3450 Located At Horizontal Angle = 0, Vertical Angle = 5  
 1 - Vertical Plane Through Horizontal Angles (0-180) (Through Max. Cd.)  
 2 - Horizontal Cone Through Vertical Angle (5) (Through Max. Cd.)

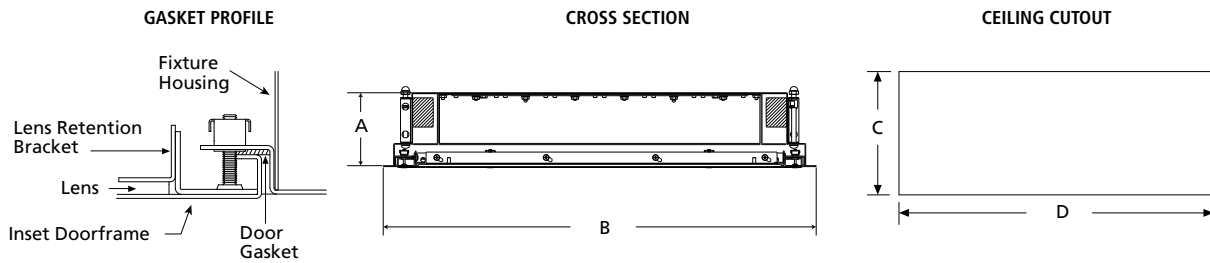
Model: CSEDI24-23RD/90B-35K8-DIM1-DV-2F-2H-SYM (Red Mode)\*



Maximum Candela = 436 Located At Horizontal Angle = 0, Vertical Angle = 5  
 1 - Vertical Plane Through Horizontal Angles (0-180) (Through Max. Cd.)  
 2 - Horizontal Cone Through Vertical Angle (5) (Through Max. Cd.)

\*Luminous intensity of "red" mode is equal across all product sizes

### DIMENSIONAL DATA



#### DIMENSIONAL DATA (IN INCHES)

	A	B	C	D
1x4	4.20	11.75 x 47.75	10.85	46.85
2x2	4.20	23.75 x 23.75	22.85	22.85
2x4	4.20	23.75 x 47.75	22.85	46.85

\* Add .375" to ceiling cut out dimensions when IF Option is specified

\*\* Height is 5.875" with LEL option



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