

# SIMPLESEAL™

## CSEDI SERIES – BIOS SkyBlue™ – INSET DOOR

### PRODUCT FEATURES:

- » Features BIOS SkyBlue Technology to benefit daytime alertness, cognition, mood and circadian rhythms
- » Diffused high-efficiency lens for reduced glare
- » Recessed ceiling mount; grid or flange - 1'x4', 2'x2', 2'x4'
- » Suitable for universal installation into 1.0" and 1.5" grid or flange (drywall) ceilings
- » One piece inset doorframe, secured to housing with aircraft cables



### 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:** 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. Dynamic features 500K downward CCT shift when dimmed for evening applications requiring lower melanopic ratio. Tunable features 2700K CCT for evening applications. Refer to table for specific melanopic values.

**DRIVER/CONTROLS:** 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.

**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 LED 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. Suitable for biosafety labs rated BSL 1 and 2. Meets FED-STD-209E/Class 1 (ISO 3) Cleanrooms. Suitable for EU GMP Grade A cleanrooms. Suitable for installation into -30°C to 40°C ambient environments, unless otherwise noted.



### ORDERING INFORMATION (Ex: CSEDI-24-67B-35K8-DIM1-DV-2F-4H-SYM)

Model	Size	Lamp Power	Lamp Color	Driver	Voltage	Doorframe	Housing	Optics	Options	Accessories
<b>CSEDI</b>										<b>SYM</b>
<b>Size</b>	<b>Lamp Power</b>		<b>Driver Type</b>			<b>Optics</b>				
14 1'x4'	1'x4'		DIM1 BIOS Biological Static with 0-10V Dimming to 1% with Dim-to-Dark Capabilities			SYM Symmetric, Diffused DR Acrylic				
22 2'x2'	45B 45 Watt BIOS		BIODIM1* BIOS Biological Dynamic with 0-10V Intensity Dimming to 1% and Dim-to-Dark Capabilities			<b>Options</b>				
24 2'x4'	67B 67 Watt BIOS		ATW BIOS Biological Tunable White with 0-10V Control of Intensity and CCT independently on 2 separate channels			LEL‡ 10W Emergency Battery Pack				
	90B 90 Watt BIOS		DTW BIOS Biological Tunable White with DALI Control of Intensity and CCT independently on 2 separate channels			20KV 20KV/KA Surge Protection per IEEE/ANSI C62.41.2 Cat. A				
	2'x2'		<b>Voltage</b>			AMF▲ Antimicrobial Finish				
	45BD 45 Watt Dual-Row BIOS		DV 120-277VAC, 50/60Hz			FS Fuse & Holder				
	67B 67 Watt BIOS		120 120VAC			HJ Sealed Wireway				
	90B 90 Watt BIOS		277 277VAC			MS Motion Sensor				
	2'x4'		<b>Doorframe Options</b>			RF• Radio Frequency Filter				
	45BD 45 Watt Dual-Row BIOS		5F 20-Ga Type 304 SS Brushed			RM† Continuous Row Mounting				
	67B 67 Watt BIOS		2F 18-Ga CRS (STD)			2C Two Circuit Wiring (1'x4'-45B single circuit operation will yield uneven lens luminance)				
	90B 90 Watt BIOS		AF Anodized Aluminum			<b>Accessories</b>				
	135B 135 Watt BIOS		PAF Painted Fabricated Aluminum			IF*† Install Frame				
	180B 180 Watt BIOS		<b>Housing Options</b>			* Add .375" to ceiling cut out dimensions				
	Lamp Color		4H 24-Ga CRS (STD)			† Only available when installed in drywall ceilings (flange mount)				
	35K8 3500K SkyBlue / 80CRI min / R9 90+		2H 20-Ga CRS			• Voltage specific selection required				
	40K8 4000K SkyBlue / 80CRI min / R9 90+		5H 20-Ga Type 304 SS			‡ n/a with 180B lamp option; voltage-specific selection required and height of fixture is 5.875" when specified with 135B lamp option; 0°C/32°F min. operating environment.				
			PAH .050" Painted Aluminum			▲ Applied only to exposed painted surfaces of luminaire (not available on stainless steel doorframes)				
						♦ Not available with 135B and 180B.				



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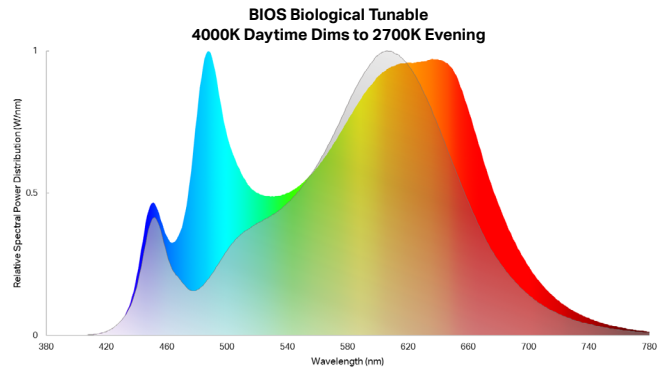
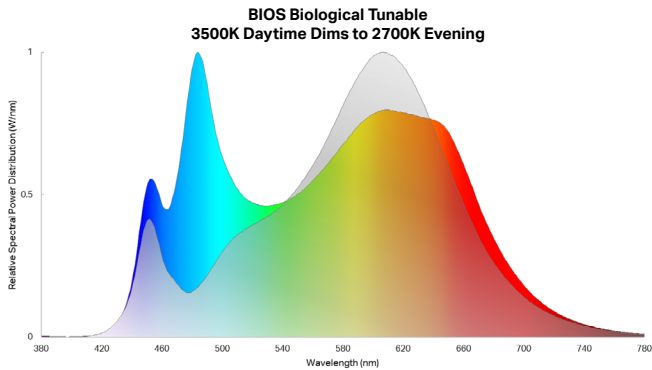
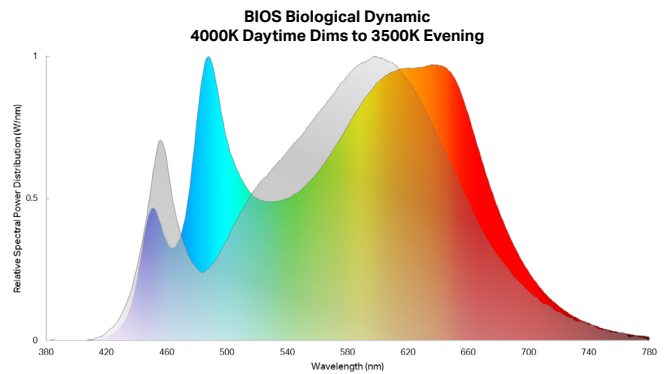
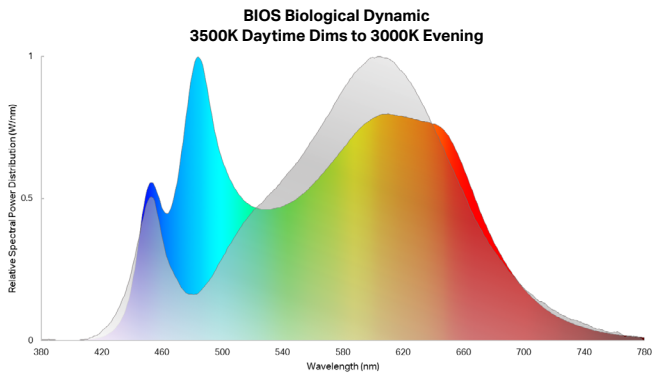
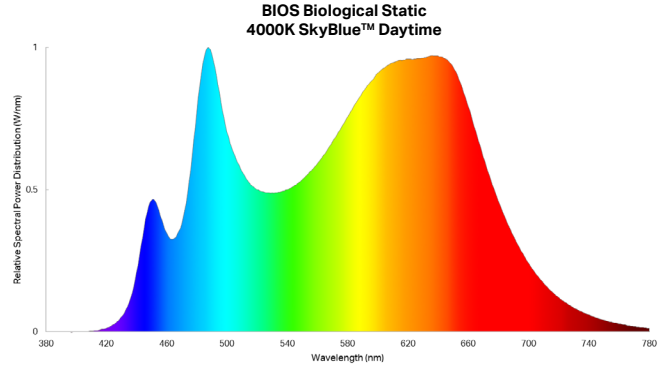
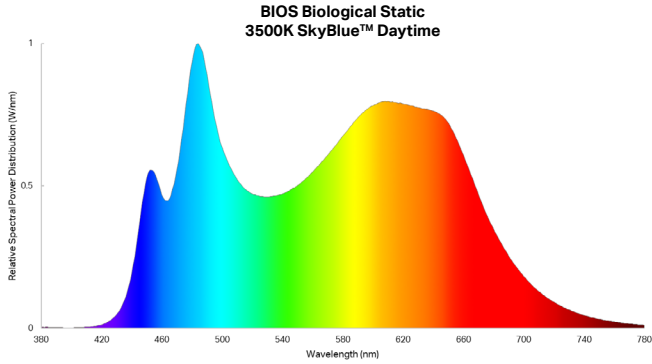
### DELIVERED MELANOPIC RATIO OF 35K8 BIOS

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		Initial Delivered Lumens		Input Power (W)	Drive Current (mA)	Estd. L <sub>70</sub> LED Life (Hrs)
Model	Lamp Type	@ 25°C	Efficacy (lm/W)			
CSEDI14	45B-35K8	4,322	88	49	100	80,000
	45B-40K8	4,693	96			
	67B-35K8	6,621	92	72	75	80,000
	67B-40K8	7,190	100			
	90B-35K8	8,448	86	98	100	80,000
	90B-40K8	9,173	94			
CSEDI22	45BD-35K8	4,181	85	49	100	80,000
	45BD-40K8	4,539	93			
	67B-35K8	6,404	89	72	75	80,000
	67B-40K8	6,954	97			
	90B-35K8	8,229	84	98	100	80,000
	90B-40K8	8,935	91			
CSEDI24	45BD-35K8	4,990	108	46	50	100,000
	45BD-40K8	5,331	116			
	67B-35K8	6,941	96	72	75	80,000
	67B-40K8	7,416	103			
	90B-35K8	8,776	90	98	100	60,000
	90B-40K8	9,529	97			
	135B-35K8	12,440	85	147	100	60,000
	135B-40K8	13,508	92			
	180B-35K8	16,963	87	196	100	60,000
180B-40K8	18,419	94				

Displayed information is for described luminaires only. Subject to change without notice.  
Visit [www.kenall.com](http://www.kenall.com) for IES files and additional information.



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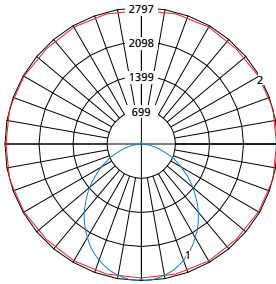
## CSEDI SERIES – BIOS SkyBlue™ – INSET DOOR

### PERFORMANCE

Model: CSEDI-14-67B-35K8-DIM1-DV-2F-2H-SYM

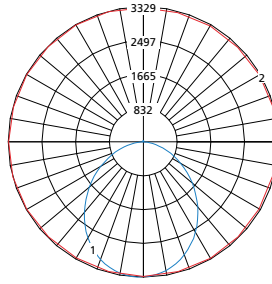
Model: CSEDI-22-90B-35K8-DIM1-DV-2F-2H-SYM

Model: CSEDI-24-180B-35K8-DIM1-DV-2F-2H-SYM



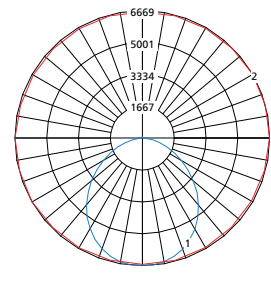
Maximum Candela = 2797 Located At Horizontal Angle = 15, Vertical Angle = 2.5

1 - Vertical Plane Through Horizontal Angles (15-195) (Through Max. Cd.)  
2 - Horizontal Cone Through Vertical Angle (2.5) (Through Max. Cd.)



Max Candela = 3329 Located At Horizontal Angle = 195, Vertical Angle = 2.5

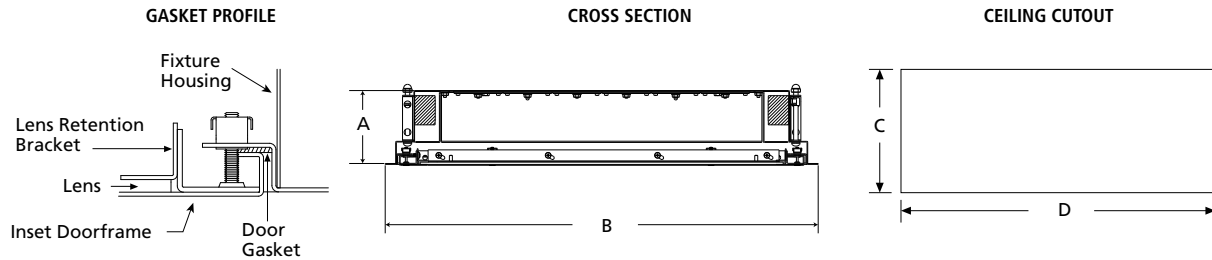
1 - Vertical Plane Through Horizontal Angles (195 - 15) (Through Max. Cd.)  
2 - Horizontal Cone Through Vertical Angle (2.5) (Through Max. Cd.)



Max Candela = 6669 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.)

### DIMENSIONAL DATA



#### DIMENSIONAL DATA (IN INCHES & CENTIMETERS)

	A	B	C	D
<b>12x48</b>	4.20	11.75 x 47.75	10.85	46.85
<b>30.48cm x 121.92cm</b>	10.67	29.85 x 121.29	27.56	119.00
<b>24x24</b>	4.20	23.75 x 23.75	22.85	22.85
<b>60.96cm x 60.96cm</b>	10.67	60.33 x 60.33	58.04	58.04
<b>24x48</b>	4.20	23.75 x 47.75	22.85	46.85
<b>60.96cm x 121.92cm</b>	10.67	60.33 x 121.29	58.04	119.00

\* Add .375" (.95cm) to ceiling cut out dimensions when IF Option is specified

\*\* Height is 5.875" (15 cm) with 135B lamp option when ordered in conjunction with LEL option.



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