SIMPLESEAL™ NARROW SPECTRUM
CSEDO SERIES – RED & TUNABLE WHITE LED

PRODUCT FEATURES:

» Click here for fixed white CCT Product

» Narrow-spectrum 630nm red LED circuit provides only high-purity light for spectrally-sensitive applications

» High-output, tunable white LED circuit provides visual acuity and accurate color rendition with an adjustable color spectrum

» Diffused high-efficiency lens for reduced glare

» One-piece overlapping door provides air-tight integrity of luminaire and room

» Suitable for universal installation into 1.0" and 1.5" grid or flange (drywall) ceilings

1'×4'   **2'×2'**   **2'×4'**

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: 20-gauge type 304 stainless steel (#4 finish-post fabrication). One-piece 60° beveled perimeter construction. Continuous angle lens retention system. Mechanical guide for doorframe fastener alignment. Doorframe secured to housing with stainless steel aircraft cables and captive flush mounted Phillips head stainless steel fasteners (8) for 2×2, (12) for 2×4. Thumb screws used for FN option.

DOORFRAME GASKET: One-piece closed cell extruded Nitrile gasket seals Doorframe to housing and ceiling structure.

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

LED MODULE: Serviceable tunable-white, mid-power LED array provides 2700K through 6500K CCT range with a two-point path. 3-step MacAdam variation allowance on each CCT. Minimum 82 CRI standard (R9 >20) with optional minimum 92 CRI (R9 >50). Serviceable 630nm red mid-power LED array (16nm FWHM bandwidth).

DRIVER: 120-277VAC, 50/60Hz electrical input (PF ≥ 0.9, THD < 20%). Minimum 85% electrical efficiency. Tunable white circuit can be independently powered and dimmed. TW: 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. Refer to charts on page 2 for further details. RED: Serviceable constant- current programmable driver. Dimming protocol matches tunable white 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

WARRANTY: Limited five (5) year warranty.

LISTINGS: Luminaire is certified to UL standards by Intertek Testing Laboratories for Wet Locations and non-IC recessed installation. Certified IP66 per IEC 60598. NSF2 Splash/Non-Food Zone. CCEA Approved. Suitable for biosafety labs rated BSL 3 and 4. Optional NSF Protocol P442 certified. FED-STD-209E/Class 1 (ISO 3) Cleanrooms. Optional NSF2 Food Zone/Non-Contact. Suitable for EU GMP Grade A cleanrooms.
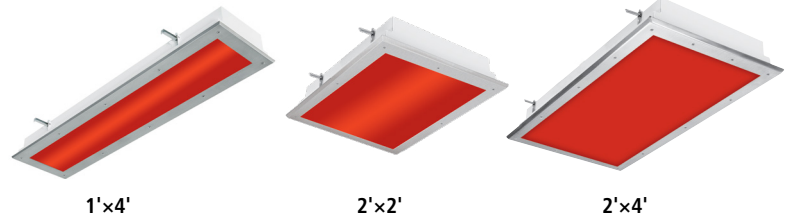
TW | LED | ETL c...us | IP66 | NSF | ISO 3 Class 1 | CCEA Approved | P442 | FN OPTION | BSL 3-4

ORDERING INFORMATION (Ex: CSEDO-24-23RD/67T-27/65K9-ATW-DV-5F-2H-SYM)

Model	Size	Lamp Power	Lamp Color	Driver	Voltage	Doorframe	Housing	Optics	Options
CSEDO	_____	_____	_____	_____	_____	_____	_____	**SYM**	_____

Size
14	1'×4'
22	2'×2'
24	2'×4'

Lamp Power
1'×4'
23R/45T	23 Watt Red/45 Watt Tunable White LED
23R/67T	23 Watt Red/67 Watt Tunable White LED

2'×2'
23RD/45TD	23 Watt Red/45 Watt Tunable White LED
23RD/67T	23 Watt Red/67 Watt Tunable White LED

2'×4'
23RD/45TD	23 Watt Red/45 Watt Tunable White LED
23RD/67T	23 Watt Red/67 Watt Tunable White LED
23RD/90T	23 Watt Red/90 Watt Tunable White LED

Lamp Color
27/65K8	2700-6500K CCT Range (82 CRI min)
27/65K9	2700-6500K CCT Range (92 CRI min)

Driver Type
ATW	Analog (0-10V) Dimming Tunable White Driver
DTW	DALI Tunable White Driver
DMX	DMX Tunable White Driver (Consult Factory)

Voltage
DV	120-277VAC, 50/60Hz
120	120VAC
277	277VAC

Doorframe Options
5F	20-Ga Type 304 SS (STD)
2F	20-Ga CRS
XF	20-GA Type 316 SS
PAF	.063" Painted Fabricated Aluminum

Housing Options
4H	24-Ga CRS (STD)
2H	20-Ga CRS
5H	20-Ga Type 304 SS
XH	20-GA Type 316 SS
PAH	.050" Painted Aluminum

Optics
SYM	Symmetric, Diffused DR Acrylic

Options
LEL†	8.4W Emergency Battery Pack
AMF▲	Antimicrobial Finish
FN**	Food Zone/Non-Contact
FS	Fuse & Holder
HJ	Sealed Wireway
RF	Radio Frequency Filter (voltage specific selection required)
RM♦	Continuous Row Mounting
P442‡	Optional NSF Protocol P442 Certified

Accessories
IF*♦	Install Frame

* Add .375" to ceiling cut out dimensions
** Lensing consists of FDA approved Food Zone clear polycarbonate outer lens and diffused acrylic inner lens
† Height of fixture is 5.875" with LEL Option. Voltage-specific selection required.
▲ Applied only to exposed painted surfaces of luminaire (not available on stainless steel doorframes)
‡ P442 only available on CSEDO24
♦ Only available when installed in drywall ceilings (flange mount). Consult factory for ceiling layout assistance.

SIMPLESEAL™
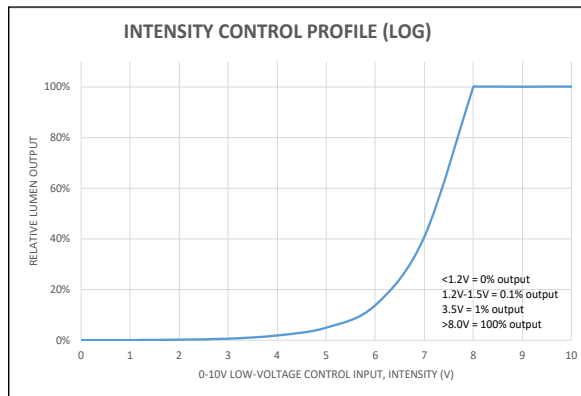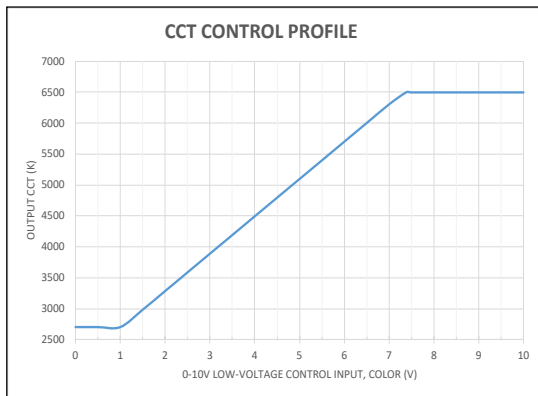## CSEDO SERIES – RED & TUNABLE WHITE LED

Size	Lamp Code	Red LED Circuit Initial Delivered Lumens			Tunable White LED Circuit Delivered Performance at 4000K			Red/White Estd. L₇₀ LED Life (hrs)
		Lumen Output (lm)	Efficacy (lm/W)	Input Power (W)	Lumen Output (lm)	Efficacy (lm/W)	Input Power (W)	
1' × 4'	23R/45T-27/65K8	954	34	28	5,676	123	46	36,000 / 80,000
	23R/45T-27/65K9				4,575	99		
	23R/67T-27/65K8				8,493	125	68	
	23R/67T-27/65K9				7,034	103		
2' × 2'	23RD/45TD-27/65K8	1,021	36	28	5,490	119	46	36,000 / 80,000
	23RD/45TD-27/65K9				4,425	96		
	23RD/67T-27/65K8				8,214	121	68	
	23RD/67T-27/65K9				6,803	100		
2' × 4'	23RD/45TD-27/65K8	1,171	53	22	6,503	145	45	36,000 / 100,000
	23RD/45TD-27/65K9				5,241	116		
	23RD/67T-27/65K8				8,760	129	68	36,000 / 80,000
	23RD/67T-27/65K9				7,256	107		
	23RD/90T-27/65K8				11,377	124	92	36,000 / 60,000
	23RD/90T-27/65K9				9,170	100		

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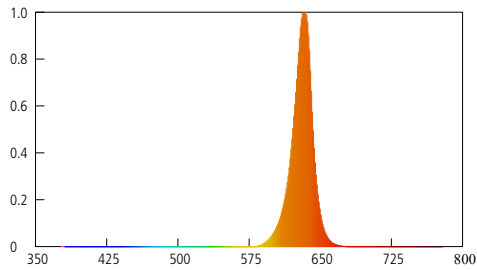
Purity: 1.0
UV: 0.0000% (<390nm)
Radiant Flux < 575nm: 0.000%
Bandwidth: 16nm
Peak Wavelength: 630nm

CCT AND INTENSITY ADJUSTMENT PROFILE - ATW DRIVER TYPE

CCT CONTROL PROFILE

INTENSITY CONTROL PROFILE (LOG)

<1.2V = 0% output
1.2V-1.5V = 0.1% output
3.5V = 1% output
>8.0V = 100% output

NOTE: The provided information is the typical expected performance of a single luminaire. Additional luminaires on the same 0-10V line may result in different control profiles. Fine tuning of system performance should be completed after installation is complete. To avoid CCT shift between luminaires, care should be taken to minimize voltage drop on the CCT Control line. It is recommended to limit the load on the CCT control circuit to twenty (20) 45T or ten (10) 67T/90T luminaires or less.

# SIMPLESEAL™
CSEDO SERIES – RED & TUNABLE WHITE LED
PERFORMANCE

Model: CSEDO14-23R/45T-27/65K8-ATW-120-2F-2H-SYM (White Mode)
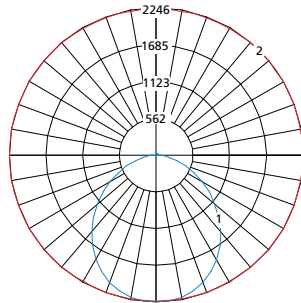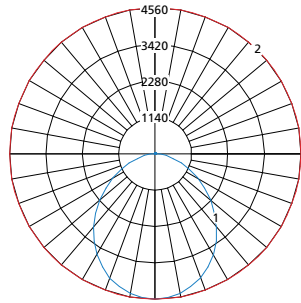
2246
1685
1123
562
2

Maximum Candela = 2246 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: CSEDO22-23RD/67T-27/65K8-ATW-120-2F-2H-SYM (White Mode)
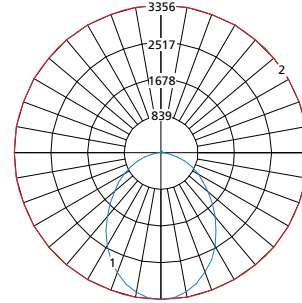
3356
2517
1678
839
2

Maximum Candela = 3356 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: CSEDO24-23RD/90T-27/65K8-ATW-120-2F-2H-SYM (White Mode)
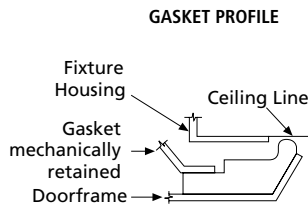
4560
3420
2280
1140
2

Max Candela = 4560 Located At Horizontal Angle = 0, Vertical Angle = 0

— 1 - Vertical Plane Through Horizontal Angles (0 - 180) (Through Max. Cd.)
— 2 - Horizontal Cone Through Vertical Angle (0) (Through Max. Cd.)

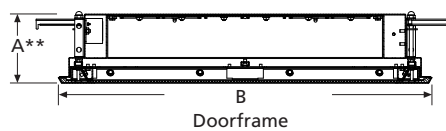Model: CSEDO24-23RD/90T-27/65K8-ATW-120-2F-2H-SYM (Red Mode)

469
352
235
117
2
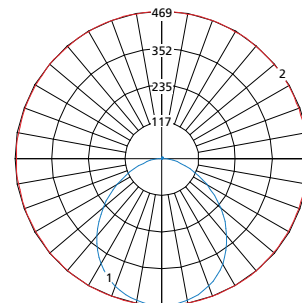
Maximum Candela = 469 Located At Horizontal Angle = 75, Vertical Angle = 2.5

— 1 - Vertical Plane Through Horizontal Angles (75-255) (Through Max. Cd.)
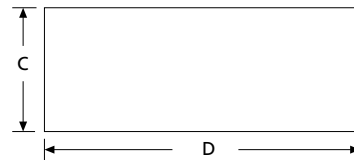— 2 - Horizontal Cone Through Vertical Angle (2.5) (Through Max. Cd.)

DIMENSIONAL DATA

GASKET PROFILE

Fixture Housing
Ceiling Line
Gasket mechanically retained
Doorframe

CROSS SECTION

A**
B
Doorframe

CEILING CUTOUT

C
D

DIMENSIONAL DATA (IN INCHES)

	A	B	C	D
1×4	4.43	11.94 × 47.94	10.85	46.85
2×2	4.43	23.94 × 23.94	22.85	22.85
2×4	4.43	23.94 × 47.94	22.85	46.85

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

** Height is 5.875" with LEL option