Project	Catalog #	Туре	
Prepared by	Notes	Date	



# Fail-Safe

# FCZ2 Sealed Cruze ST 2x4

2x4 Sealed Center Basket Sterile Environments / Behavioral Health Curved or Square Lens 3,000 to 17,000 lumens

#### **Typical Applications**

 $\label{eq:Medical*Cleanroom*Behavior Health*Education*Laboratory*Pharmacy*Fitness Center* R\&D Center$ 

# Interactive Menu

- Order Information page 2
- Photometric Data page 3
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- Product Warranty

# **Product Certification**















### **Product Features**









# **Top Product Features**

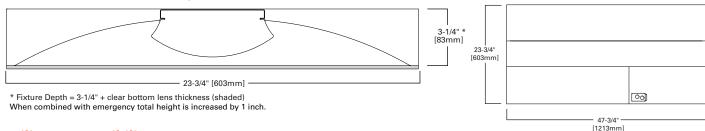
- · Sealed center basket luminaire for use in high abuse, medical, wet location, and sterile applications
- · Wet location standard, IP65 standard for dust and water ingress protection
- NSF listed for use in food services/food preparation environments
- Clear polycarbonate bottom lens for use in behavioral health applications
- · ISO5-9 certified
- VividTune tunable white (3000K-5000K and 2700K-6500K) available in 80CRI or 90CRI

Ceiling

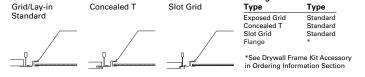
Trim

- · Options to meet Buy American and other domestic preference requirements
- · IK10 with Polycarbonate Lens

# Dimensional and Mounting Details (standard curved lens shown)



# **Ceiling Compatibility**









Fail-Safe FCZ2 2x4

# **Order Information**

SAMPLE ORDER NUMBER: 24FCZ2-40HE-UNV-L840-CP125-CD1

Domestic Preferences	Series	Lumen Output		Shielding	Voltage	Options CRI/CCT	Flex
Domestic Preferences (16)	Series	Lumen Level	Efficacy	Shielding	Voltage (2)	CRI/CCT	Flex
[Blank]=Standard BAA=Buy American Act TAA=Trade Agreements Act	24FCZ2=24 inch width, 4 ft. length	30=3000 Lumens 35=3500 Lumens 40=4000 Lumens 45=4500 Lumens 45=4500 Lumens 45=4500 Lumens (10) 45=5500 Lum	[Blank]=Standard Efficacy (13) HE=High Efficacy (14) (VHE=Very High Efficacy (11). (15)	[Blank]=Ribbed Frosted Acrylic Curved Lens (standard) S=Smooth Frosted Acrylic Curved Lens RDP=Smooth Curved Lens with Round Pattern Insert HRP=Curved Lens High- Efficiency Round Perf Inlay SQR=Square Lens	UNV=Universal Voltage 120- 277 347V=347 Volt <sup>(S)</sup>	L830=80CRI, 3000K L835=80CRI, 3500K L840=80CRI, 4000K L850=80CRI, 5000K L83050=80CRI, 3000K-5000K White Tuning (**) L82765=80CRI 2700K-6500K White Tuning (**) L930=90CRI, 3000K L930=90CRI, 3000K L940=90CRI, 4000K L940=90CRI, 4000K L950=90CRI, 5000K L93050=90CRI 3000K-5000K White Tuning (**) L92765=90CRI 2700K-6500K White Tuning (**)	[Blank]=No Flex A3/8-4/18GDIM=3/8" Flex with 0-10V Dimming Leads A3/8-2/18G=3/8" Flex with line and common A3/8-5/18GDIM=Flex with 0-10V Dimming leads and Blue for alternate wiring. See below for details.
Notes  (16) Only product configurations with these designated prefixes are built to be compliant with the Buy American Act of 1933 (BAA) or Trade Agreements Act of 1979 (TAA), respectively. Please refer to DOMESTIC. PREFERENCES website for more information. Components shipped separately may be separately analyzed under domestic preference requirements.		Notes  (10) Not available with white tuning and Standard Efficacy. (11) available with CD driver option. (12) 6500 lumens standard efficand higher are not available with WM driver. (13) Available up to 7500 lumens. (15) Requires 2 CD-1 drivers above.	cacy and 7500 lumens 6500 lumens. (14)		Notes (2) Products also available in non-US voltages and frequencies for international markets. (5) 347 versions 6000 lumens and below are available with emergency options, 347 versions with emergency 5LTHD, step-dim or sensors are not available.	Notes (7) White tuning provides correlated color temperatures (CCT) between 3000K (warm) to 5000K (cool) or 2700K (warm) to 6500K (cool). Must be used in conjunction with W2A driver only. Must be used with two (2) 10V dimming control channels, 1 color, 1 intensity. Not compatible with other control or sensor options. Must be used in conjunction with W2A driver only, Must be used with two (2) 10V dimming control channels, 1 color, 1 intensity. Not compatible with other control or sensor options.	Flexible Metal Conduit Options Flex options available for 0-10V dimming control, DALI dimming control, emergency and night light functions. 72-inch factory-installed and pre-wired to driver, fitted to luminaire housing access plate with 90° enclosed FMC connector. Not all options may be combined and installation ratings vary by type. A3/8-4/18 GDIM series notes: Factory installed dimming option 3/8″ flexible metal conduit with 2-#18 power and ground wires and c3-#18 UL-ilsted jacketed 0-110V +/- control wires. Meets UL 66, 83, 1479, 1569, 1581, 2566. NEC® 250.118, 300.22(0), 392, 396, 330, 501, 502, 503, 530, 504, 505, 518, 520, 530, 645, 72; Federal Specification A-4-59544 (formerly J-C-30B); all applicable OSHA and HUD Requirements. UL classified 1, 2, and 3-hour through penetration with applicable fire stop product (not included). May be surface mounted, fished and/or embedded in plaster. Cable tray and approved raceway rated, install per NEC® Environmental Air-Handling Space Installation per NEC® 300.22(C).

**Bottom Lens Driver Type Number of Drivers Options** 

Bottom Lens	Driver Type	Number of Drivers	Options
CA08=0.080" Clear Acrylic CA125=0.125" Clear Acrylic CP125=Clear Polycarbonate 0.125" CP187=Clear Polycarbonate 0.187" CP250=Clear Polycarbonate 0.250"	CD=0-10V Driver (10%-100% Dimming) HCD=0-10V Driver (1%-100% Dimming) SLTD=DALI Driver (5%-100% Dimming) SLTHD=DALI Driver (1%-100% Dimming) SD=Step Dimming Driver (5% or 100% Dimming) LH=Lutron HiLume (LDE1 series) 1%-100% EcoSystem Driver with Soft-on Fade to Black dimming (F) W2A=White Tuning, 2 ch, Analog 0-10V Intensity and CCT Control (F)	1=1 Driver 2=2 Drivers <sup>(9)</sup>	[Blank]=No Element Fuse GL=Single Element Fuse GM=Double Element Fuse AMW=Anti-microbial, Powder Coat, Matte White Paint
	Notes  (7) White tuning provides correlated color temperatures (CCT) between 3000K (warm) to 5000K (cool) or 2700K (warm) to 6500K (cool). Must be used in conjunction with W2A driver only. Must be used with two (2) 10V dimming control channels, 1 color, 1 intensity. Not compatible with other control or sensor options.  Integrated options must be used in conjunction with the associated system and may not be compatible with other options or accessories. Please refer to the following: (F) Consult Marketplace Options - Lutron system pages for additional details and compatibility. Compatible only with driver series shown, and may require two or more drivers. Requires field commissioning to operate or dim. Contact Lutron at www.lutron.com	Notes (9) Two drivers are required for the following packages: 65 347V CD, 75HE 347V CD. When combined with emergency total height is increased by 1 inch.	

Integrated Sensing Systems Accessories Emergency

Options Emergency	Integrated Sensing Systems	Accessories (order separately) (17)
[Blank]=No Emergency Pack ELTW=7-watt, 120V-277V emergency battery pack installed <sup>(3)</sup> EL14W=14-watt 120V-277V emergency battery pack installed <sup>(3)</sup> GTR2=Generator Transfer Relay <sup>(6)</sup> ETRD=Emergency Transfer Relay with dimming control <sup>(6)</sup>	[Blank]=No Sensor LWTPD1=Enlighted Wireless Tile- mount Sensor <sup>(8)</sup>	[Blank]=No Accessory FCZ2-EQCLIP-U-PK=Pack of four Fail-Safe Cruze grid security clips (1) DFCL-2448W-U=2' x 4' gasketed drywall framing kit. ships with gasket to be applied in field. Cutout Dimensions 24.25" x 48.25" (18) DFVR/FCZ-2448W-U=2' x 4' secured tamper resistant drywall kit. Cutout dimensions 24.25" x 48.25" (18) ISHH-01=Programming Remote for Integrated Sensor (0) ISHH-02=Personal Control Remote for Integrated Sensor (0)
(3) With integral test switch/indicator/laser test. For approximate delivered lumens multiply the lumens per watt of the desired fixture by the wattage of the emergency battery pack (100 Im/W x 7-700 lumens). IES-format photometry for luminaire under emergency operation available. (6) Used to bypass local control during outage. Must be used in conjunction with UL 1008 device (provided by others). GTR2 option includes 2 relays on fixtures with dimming drivers. ETR0 option only requires one relay when used on a dimming fixture. Must specify voltage as 120V or 277V when ordering these devices. 347 not available.  Integrated options must be used in conjunction with the associated system and may not be compatible with other options or accessories.	Integrated Sensing and Control System Options NOTES: Integrated options must be used in conjunction with the associated system and may not be compatible with other options or accessories. Please refer to the following:  (B) Consult Enlighted system pages for additional details and compatibility.	(1) An EQ Grid Clip is recommended for all 9/16" celling systems. Four required per fixture. (17) Accessories sold separately will be separately analyzed under domestic preference requirements. Consulf factory for further information. Integrated options must be used in conjunction with the associated system and may not be compatible with other options or accessories. Please refer to the following: (D) Consult SVPD series system pages for additional details and compatibility. (18) For Anti-microbial matte white finish, replace W with AMW. ex. DFCL-2448AMW-U



Fail-Safe FCZ2 2x4

# **Product Specifications**

#### Construction

 Formed steel housing with integral Grid-lock feature and optional grid security clips

#### **Integrated Controls**

Standard with 0-10V dimming. Optionally available with Lutron and Dali

#### **LED and Light Engine**

- Available in 3000, 3500, 4000, and 5000K fixed color temperatures, or with Vividtune white tuning technology
- · Drivers available in 120-277V and 347V
- TM21 life at 60,000 hours up to L85 and L70 exceeds 132,000 hours

#### **Emergency Battery Options**

- Optional 120-277V emergency battery available in 7W or 14W
- · 90-minute backup period for code compliance
- Test switch with laser pointer and testing from floor feature for ease of use
- Generator transfer options available

#### **Finish**

· High Gloss white finish standard

# Shielding

- · Standard ribbed frosted acrylic curved diffuser
- Optional clear curved diffuser with perf or decorative pattern inserts
- · Optional smooth acrylic frosted curved lens (S)
- · Optional metal perforated acrylic curved lens (RDP)
- Optional High-Efficiency Curved Round Perf Inlay (HRP)
- · Optional square frosted acrylic lens (SQR)

**View IES files** 

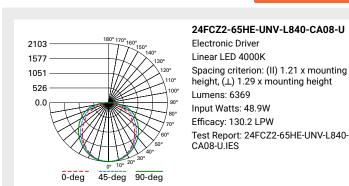
#### Compliance

- · IC rated, cULus Wet Location
- · RoHS compliant
- ISO5-9 certified
- IP65
- IK10 Polycarbonate Lens
- NSF rated; Splash, Non-Food Zone Typical rating for lighting equipment not subjected to direct food contact. (e.g. ceiling mount luminaires). Examples of equipment subjected to direct food contact would be cutting boards, work-tables, mixers, canopeners, other)

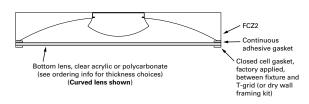
#### Warranty

· Five year warranty standard

### **Photometric Data**



# **Cross Section**



# **Energy and Performance Data**

### Shielding

Lumen Adjustment Factors										
S RDP HRP SQR										
1.05	0.67	0.85	0.96							

# Lumen Calculator

CCT Multiplier	80 CRI	90 CRI
3000K	0.994	0.830
3500K	1.00	0.845
4000K	1.00	0.854
5000K	1.065	0.852

# Shipping Data

Load Data (Stock Product)

**THD** 

Power Factor Weight (lbs.)

Low Temp. Start

Catalog No.	Wt.	Pallet 49"L x 52"W x 46"H
2' x 4'	20.4 lbs.	28

6% 0.99

16 -20°C

### Lumen Maintenance

Version	TM-21 Lumen Maintenance (60,000 hours) <sup>(1)</sup>	Theoretical L70 (Hours) <sup>(2)</sup>
Standard	> 87%	> 162,000
High Efficiency	> 94%	> 290,000
Very High Efficiency	> 94%	> 290,000

**Notes:** (1) Supported by IES TM-21 standards. (2) Theoretical values represent estimations commonly used; however, refer to the IES position on LED Product Lifetime Prediction, IES PS-10-18, that explains proper use of IES TM-21 and LM-80.

Fail-Safe FCZ2 2x4

# **Energy and Performance Data Catalog Number**

# Standard Efficacy Versions - Single Row of LEDs

Catalog Number	Watts	CA08	LPW	CA125	LPW	CP125	LPW	CP187	LPW	CP250	LPW
24FCZ2-30-XXXX-UNV-35-CD1	24.2	2930	121	2920	120.6	2863	118.3	2742	113.3	2719	112.4
24FCZ2-35-XXXX-UNV-35-CD1	30.1	3516	117	3504	116.4	3435	114.1	3290	109.3	3263	108.4
24FCZ2-40-XXXX-UNV-35-CD1	36.2	4056	112	4041	111.6	3963	109.5	3795	104.8	3764	104.0
24FCZ2-45-XXXX-UNV-35-CD1	42.9	4463	104	4447	104	4361	102	4176	97	4142	97
24FCZ2-50-XXXX-UNV-35-CD1	48.6	4847	100	4830	99	4736	97	4535	93	4498	93
24FCZ2-55-XXXX-UNV-35-CD1	50.5	5385	107	5365	106	5261	104	5039	100	4997	99
24FCZ2-60-XXXX-UNV-35-CD1	55.6	5840	105	5819	105	5706	103	5464	98	5420	97
24FCZ2-65-XXXX-UNV-35-CD1	62.8	6352	101	6329	101	6206	99	5944	95	5895	94

### High Efficacy Versions – Two Rows of LEDs

Catalog Number	Watts	CA08	LPW	CA125	LPW	CP125	LPW	CP187	LPW	CP250	LPW
24FCZ2-30HE-XXXX-UNV-35-CD1	22.4	2913	130	2902	130	2846	127	2725	122	2703	121
24FCZ2-35HE-XXXX-UNV-35-CD1	26.9	3463	129	3450	128	3383	126	3240	120	3214	119
24FCZ2-40HE-XXXX-UNV-35-CD1	30.6	3894	127	3880	127	3805	124	3644	119	3614	118
24FCZ2-45HE-XXXX-UNV-35-CD1	35.3	4428	125	4412	125	4326	123	4143	117	4110	116
24FCZ2-50HE-XXXX-UNV-35-CD1	38.6	4853	126	4836	125	4741	123	4541	118	4504	117
24FCZ2-55HE-XXXX-UNV-35-CD1	43.5	5378	124	5359	123	5254	121	5032	116	4991	115
24FCZ2-60HE-XXXX-UNV-35-CD1	44.1	5809	132	5789	131	5676	129	5436	123	5392	122
24FCZ2-65HE-XXXX-UNV-35-CD1	48.9	6369	130	6347	130	6223	127	5960	122	5911	121
24FCZ2-70HE-XXXX-UNV-35-CD1	51.0	6783	133	6758	133	6627	130	6347	124	6295	123
24FCZ2-75HE-XXXX-UNV-35-CD1	55.4	7318	132	7292	132	7150	129	6848	124	6792	123

### Very High Efficacy Versions - Three Rows of LEDs

Catalog Number	Watts	CA08	LPW	CA125	LPW	CP125	LPW	CP187	LPW	CP250	LPW
24FCZ2-30VHE-XXXX-UNV-35-CD1	20.4	2910	143	2900	142	2843	139	2843	139	2701	132
24FCZ2-35VHE-XXXX-UNV-35-CD1	22.8	3408	150	3396	149	3330	146	3330	146	3163	139
24FCZ2-40VHE-XXXX-UNV-35-CD1	26.2	3906	149	3893	149	3817	146	3817	146	3625	138
24FCZ2-45VHE-XXXX-UNV-35-CD1	29.6	4406	149	4390	148	4305	145	4305	145	4089	138
24FCZ2-50VHE-XXXX-UNV-35-CD1	32.7	4894	150	4877	149	4782	146	4782	146	4542	139
24FCZ2-55VHE-XXXX-UNV-35-CD1	36.1	5383	149	5364	149	5260	146	5260	146	4996	138
24FCZ2-60VHE-XXXX-UNV-35-CD1	38.7	5852	151	5831	151	5718	148	5718	148	5431	140
24FCZ2-65VHE-XXXX-UNV-35-CD1	42.2	6345	150	6322	150	6199	147	6199	147	5888	140
24FCZ2-70VHE-XXXX-UNV-35-CD1	45.7	6822	149	6798	149	6666	146	6666	146	6332	139
24FCZ2-75VHE-XXXX-UNV-35-CD1	49.9	7405	148	7379	148	7235	145	7235	145	6872	138
24FCZ2-80VHE-XXXX-UNV-35-CD1	53.8	7855	146	7827	146	7675	143	7675	143	7290	136
24FCZ2-85VHE-XXXX-UNV-35-CD1	57.9	8312	144	8282	143	8121	140	8121	140	7714	133
24FCZ2-90VHE-XXXX-UNV-35-CD1	61.8	8749	142	8718	141	8549	138	8549	138	8120	131
24FCZ2-95VHE-XXXX-UNV-35-CD1	65.6	9202	140	9169	140	8990	137	8990	137	8540	130
24FCZ2-100VHE-XXXX-UNV-35-CD1	69.6	9849	142	9814	141	9623	138	9623	138	9141	131
24FCZ2-110VHE-XXXX-UNV-35-CD1	77.4	10726	139	10688	138	10480	135	10480	135	9954	127
24FCZ2-120VHE-XXXX-UNV-35-CD1	83.6	11802	141	11759	141	11531	138	11531	138	10953	131
24FCZ2-130VHE-XXXX-UNV-35-CD1	90.7	12826	141	12780	141	12532	138	12532	138	11903	131
24FCZ2-150VHE-XXXX-UNV-35-CD1	104.2	14503	139	14451	139	14170	136	14170	136	13460	129
24FCZ2-170VHE-XXXX-UNV-35-CD1	123.4	16450	133	16392	133	16073	130	16073	130	15267	124

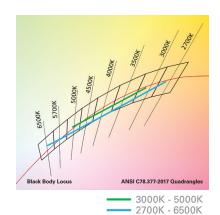


Fail-Safe FCZ2 2x4



#### 24 FCZ LED with VividTune Tunable White

VividTune tunable white luminaires from Cooper Lighting Solutions deliver high-quality light in a broad range of continuously variable color temperatures and intensities. Create a dynamic environment by adjusting the ambient light warmer or cooler to influence mood, support the task at hand, or create a dramatic ambience. The ability to control correlated color temperature and intensity separately using simple controls is the next evolution of LED lighting for the commercial, educational, healthcare and hospitality space. The unparalleled flexibility and number of available lighting environments enable users to find the right light with tunable white.



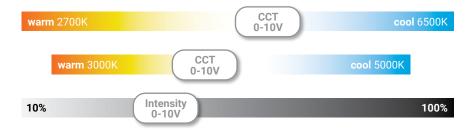
#### Performance Data\*

Tunable White - Lumen Adjustment Factors											
ССТ	3000K	-5000K	2700K-6500K								
CCI	80 CRI	90 CRI	80 CRI	90 CRI							
2700K	-	-	0.878	0.750							
3000K	0.904	0.744	0.903	0.779							
3500K	0.956	0.813	0.934	0.819							
4000K	1.004	0.878	0.954	0.844							
4500K	1.014	0.893	0.972	0.866							
5000K	1.014	0.893	0.985	0.884							
6500K	-	-	0.999	0.908							

2' x 4' FCZ LED - Example of Approximate Lumen Calculation			
	Standard Catalog #	VividTune 80 CRI Catalog #	VividTune 90 CRI Catalog #
CCT Setting	24FCZ2-40HE-UNV-L835-CD1-U	24FCZ2-40HE-UNV-L83050-W2A1-U	24FCZ2-40HE-UNV-L93050-W2A1-U
3000K	-	3641	2998
3500K	4029	3853	3275
4000K	-	4046	3537
4500K	-	4084	3599
5000K	-	4084	3599

# **Controlling VividTune Tunable White**

VividTune luminaires make tunable white more accessible by using simple and familiar controls. From wall dimmers to wireless controls, VividTune tunable white luminaires are compatible with industry standard 0-10V dimming controls. A single 0-10V dimming input is used to control intensity (brightness) while a second 0-10V dimming input is used to adjust CCT. For suggested control configurations, go to <a href="https://www.cooperlighting.com">www.cooperlighting.com</a> for tunable white application guides.





www.cooperlighting.com