

DESCRIPTION

The FR series is a premium recessed commercial luminaire which offers a high quality lighting solution dedicated with the latest solid state lighting and electronic driver technology for optimal performance and energy efficiency. The FR series is compatible with all of today's popular ceiling systems and is available with a number of shielding options and accessories for application versatility.

The FR series features efficiency, quality and performance. The series is an excellent choice for commercial office spaces, schools, hospitals or retail merchandising areas.

Catalog #		Type	
Project		Date	
Comments			
Prepared by			

SPECIFICATION FEATURES

Construction

Rigid housing is die formed of code gauge prime cold rolled steel and features full length die-formed stiffeners and unibody endplate for added strength. Side flanges are hemmed. Innovative design provides superior lens brightness uniformity and visual comfort. Unibody endplates are securely attached with interlocking tabs and screws. Four auxiliary fixture end suspension points provided. Gridlock feature for safety and convenience.

Controls

The FR series is equipped standard with a 0-10V continuous dimming driver that works with any standard 0-10V control/dimmer. Combine with energy-saving products like occupancy sensors, daylighting controls, and lighting relay panels from Cooper Controls (www.coopercontrol.com) to maximize energy savings. Or, specify the Digital Addressable Lighting Interface (DALI) drivers, dimmable down to 1% with the HD option, for use with Fifth Light controls. Consult factory for integrated sensor options.

Electrical

Long-Life LED system coupled with electrical driver to deliver optimal performance. LED's available in 2700, 3000K, 3500K, 4000K or 5000K with typical CRI 85. Projected life is 60,000 hours at 70% lumen output. cULus listed. Electronic drivers are available for 120-277V applications. A 0-10V dimming driver is standard.

Emergency Battery Pack Option

Optional 120v-277v integral emergency battery pack is available in 7-watts or 14-watts to meet critical life-safety lighting requirements. The 90-minute batteries provide constant power to the LED system, ensuring code-compliance. A test switch/indicator button can be tested safely from the ground using a laser pointer, while the patented EZ Key prevents accidental discharge of the battery during construction. See ordering information for details.

Finish

Multistage, iron phosphate pretreatment ensures maximum bonding and rust inhibition. Housing and driver cover finished with new 90% reflective white enamel for superior performance.

Hinging / Latching

Cam steel latches with baked white enamel finish. Safety-lock T-hinges allow hinging and latching either side.

Frame/Optical Shielding

Curved, Frost lens within steel hinged door frame. Lens offers a balance of aesthetics and light stability.

Compliance

Modules are UL recognized components and indoor luminaires are cULus listed for 25°C ambient environments, RoHS compliant, and LED modules comply with IESNA LM-79 and LM-80 standards. DesignLights Consortium™ Qualified and classified for both DLC Standard and DLC Premium, refer to www.designlights.org for details.

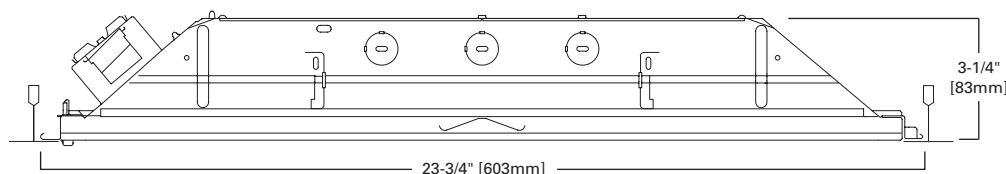


**22FR
LED**

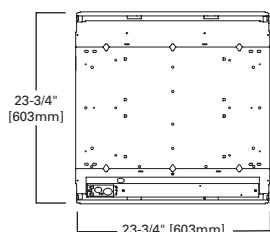
2' X 2' LED LUMINAIRE

Premium Recessed
Commercial LED Luminaire

For Use in Insulated
Ceilings



MOUNTING DATA



CEILING COMPATIBILITY

Grid/Lay-in Standard	Concealed T	Slot Grid	Ceiling Type	Trim Type
			Exposed Grid	G
			Concealed T	G
			Slot Grid	G

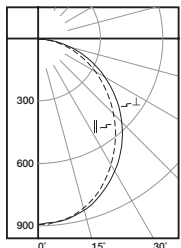
(Verify compatibility/ consult factory.)

WATTAGE

Catalog Number	Performance Type	Product Description	Nominal Lumens	Wattage	Efficacy (lm/W)
22FR-LD4-24-UNV-L835-CD1-U	Standard	2' x 2', Premium Commercial Troffer, 2200 lm, 3500K, UNV	2345	21.2	110.6
22FR-LD4-24-UNV-L840-CD1-U	Standard	2' x 2', Premium Commercial Troffer, 2200 lm, 4000K, UNV	2383	21.2	112.3
22FR-LD4-24-UNV-L850-CD1-U	Standard	2' x 2', Premium Commercial Troffer, 2200 lm, 5000K, UNV	2601	21.2	122.6
22FR-LD4-24-HP-UNV-L835-CD1-U	High Performance	2' x 2', Premium Commercial Troffer, 2200 lm, 3500K, UNV	2356	19.9	118.4
22FR-LD4-24-HP-UNV-L840-CD1-U	High Performance	2' x 2', Premium Commercial Troffer, 2200 lm, 4000K, UNV	2394	19.9	120.3
22FR-LD4-24-HP-UNV-L850-CD1-U	High Performance	2' x 2', Premium Commercial Troffer, 2200 lm, 5000K, UNV	2613	19.9	131.3
22FR-LD4-32-UNV-L835-CD1-U	Standard	2' x 2', Premium Commercial Troffer, 3200 lm, 3500K, UNV	3313	34.6	95.8
22FR-LD4-32-UNV-L840-CD1-U	Standard	2' x 2', Premium Commercial Troffer, 3200 lm, 4000K, UNV	3366	34.6	97.3
22FR-LD4-32-UNV-L850-CD1-U	Standard	2' x 2', Premium Commercial Troffer, 3200 lm, 5000K, UNV	3674	34.6	106.2
22FR-LD4-32-HP-UNV-L835-CD1-U	High Performance	2' x 2', Premium Commercial Troffer, 3200 lm, 3500K, UNV	3238	28.7	112.8
22FR-LD4-32-HP-UNV-L840-CD1-U	High Performance	2' x 2', Premium Commercial Troffer, 3200 lm, 4000K, UNV	3290	28.7	114.6
22FR-LD4-32-HP-UNV-L850-CD1-U	High Performance	2' x 2', Premium Commercial Troffer, 3200 lm, 5000K, UNV	3591	28.7	125.1

Notes: Bold=stocked SKUs (STK), available for immediate shipment. Non-bold=MTO SKUs, available in less than two weeks. All models also available in 2700K and 3000K.

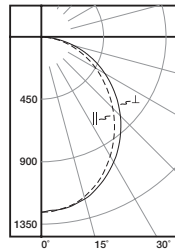
PHOTOMETRICS



22FR-24-UNV-L835-CD1-U
 Electronic Driver
 Linear LED 3500K
 Spacing criterion: (II) 1.2 x mounting height, (⊥) 1.2 x mounting height
 Lumens: 2345
 Input Watts: 21.2W
 Efficacy: 110.6 lm/W
 Test Report: 22FR-24-UNV-L835-CD1-U.IES

Candlepower

Angle	Along II	45°	Across ⊥
0	890	890	890
5	883	882	883
10	868	869	872
15	839	843	850
20	801	807	818
25	751	762	777
30	696	710	731
35	636	655	681
40	575	595	625
45	509	533	565
50	444	469	503
55	379	403	436
60	318	339	369
65	255	275	302
70	195	214	236
75	139	155	170
80	86	97	106
85	38	44	46
90	0	0	0



22FR-32-UNV-L835-CD1-U
 Electronic Driver
 Linear LED 3500K
 Spacing criterion: (II) 1.2 x mounting height, (⊥) 1.2 x mounting height
 Lumens: 3313
 Input Watts: 34.6W
 Efficacy: 95.8 lm/W
 Test Report: 22FR-32-UNV-L835-CD1-U.IES

Candlepower

Angle	Along II	45°	Across ⊥
0	1259	1259	1259
5	1249	1247	1248
10	1227	1228	1233
15	1187	1192	1203
20	1131	1141	1156
25	1062	1077	1099
30	984	1004	1034
35	899	925	961
40	811	841	881
45	719	753	797
50	626	662	708
55	534	570	615
60	447	478	522
65	359	389	430
70	274	302	336
75	195	217	241
80	120	137	151
85	53	62	66
90	0	0	0

Coefficients of Utilization

rc rw RCR	Effective floor cavity reflectance																				
	80%				70%				50%				30%				10%				0%
	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	0			
0	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	100			
1	109	104	100	96	106	102	98	94	97	94	91	94	91	88	90	88	86	84			
2	99	91	84	78	96	89	83	77	85	80	75	82	78	74	79	75	72	70			
3	90	80	72	65	88	78	71	65	75	69	63	72	67	62	70	65	61	59			
4	83	71	62	55	80	69	61	55	67	60	54	65	58	53	62	57	53	51			
5	76	63	54	48	74	62	54	48	60	53	47	58	52	47	56	51	46	44			
6	70	57	48	42	69	56	48	42	54	47	41	53	46	41	51	45	41	39			
7	65	52	43	37	64	51	43	37	50	42	37	48	41	36	47	41	36	34			
8	61	47	39	33	59	47	39	33	45	38	33	44	38	33	43	37	32	31			
9	57	44	35	30	56	43	35	30	42	35	30	41	34	29	40	34	29	28			
10	53	40	32	27	52	40	32	27	39	32	27	38	31	27	37	31	27	25			

Zonal Lumen Summary

Zone	Lumens	% Fixture
0-30	673	287
0-40	1084	46.2
0-60	1859	79.3
0-90	2435	100.0
0-180	2435	100.0

Coefficients of Utilization

rc rw RCR	Effective floor cavity reflectance																				
	80%				70%				50%				30%				10%				0%
	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	0			
0	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	100			
1	109	104	100	96	106	102	98	94	97	94	91	94	91	88	90	88	86	84			
2	99	91	84	78	96	89	83	77	85	80	75	82	78	74	79	75	72	70			
3	90	80	72	65	88	78	71	65	75	69	63	72	67	62	70	65	61	59			
4	83	71	62	55	80	69	61	55	67	60	54	65	58	53	62	57	53	51			
5	76	63	54	48	74	62	54	48	60	53	47	58	52	47	56	51	46	44			
6	70	57	48	42	69	56	48	42	54	47	41	53	46	41	51	45	41	39			
7	65	52	43	37	64	51	43	37	50	42	37	48	41	36	47	41	36	34			
8	61	47	39	33	59	47	39	33	45	38	33	44	38	33	43	37	32	31			
9	57	44	35	30	56	43	35	30	42	35	30	41	34	29	40	34	29	28			
10	53	40	32	27	52	40	32	27	39	32	27	38	31	27	37	31	27	25			

Zonal Lumen Summary

Zone	Lumens	% Fixture
0-30	951	28.7
0-40	1531	46.2
0-60	2625	79.2
0-90	3313	100.0
0-180	3313	100.0

ORDERING INFORMATION

SAMPLE NUMBER: 22FR-LD4-32-UNV-L835-CD1-U

<p>Rating [Blank]= Standard ATW-SW4= Chicago Rated</p> <p>Width / Length 22=2' x 2'</p>	<p>LED Type LD4=LED 4.0</p> <p>LED Lumens Output⁽⁴⁾ Stock 32=3200 MTQ 24=2400</p>	<p>Voltage⁽²⁾ 347=347V UNV=Universal Voltage 120-277</p>	<p>Driver Type CD=0-10V Dimming Driver (10% - 100% Dimming) HCD=0-10V Dimming Driver (1% - 100% Dimming) SD=Step-dim Driver⁽⁵⁾ 5LTD=Fifth Light DALI Driver (10% - 100% Dimming)^{(5),(6)} 5LTHD=Fifth Light DALI Driver (1% - 100% Dimming)^{(5),(6)}</p>	<p>Options PMW=Paint Matte White</p>	<p>Packaging U=Unit Pack</p>
<p>Series⁽⁸⁾ FR=Premium Commercial Luminaire</p>	<p>Shielding [Blank]=Curved Frosted Acrylic Lens (standard) HP=High Performance, Curved Frosted Acrylic Lens</p>	<p>Options</p> <p>Emergency EL7W=7-watt, 120V-277V emergency battery pack installed⁽³⁾ EL14W=14-watt 120V-277V emergency battery pack installed⁽³⁾ GTD2=Bodine Generator Transfer Device⁽⁷⁾ ETS2=IOTA Emergency Transfer Switch⁽⁷⁾</p>	<p>Number of Drivers 1=1 Driver</p>	<p>ACCESSORIES</p> <p>EQ-CLIP-U=T-BAR Safety Earthquake Clips⁽¹⁾ DF-22-W=2' x 2' Drywall Frame Kit SK-22-WS=2' x 2' Shallow Surface Mount Kit SK-22-WT=2' x 2' Tall Surface Mount Kit DF10P-C=Decorator Dimmer, 0-10V SF10P-=Decorator Slide Dimmer, 0-10V ISHH-01=Programming Remote for Integrated Sensor ISHH-02=Personal Control Remote for Integrated Sensor</p>	
<p>Door Frame Standard=Flat White Steel Door (Leave Blank)</p>	<p>CCT L827=2700K L830=3000K L835=3500K L840=4000K L850=5000K</p> <p>Flex Multiple Configurations Available</p>				

NOTES: ⁽¹⁾An EQ Grid Clip is recommended for all 9/16" ceiling systems. Four required per fixture. ⁽²⁾ Products also available in non-US voltages and frequencies for international markets. ⁽³⁾ External 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 lm/W x 7=700 lumens). IES-format photometry for luminaire under emergency operation available. ⁽⁴⁾ Nominal lumen output. ⁽⁵⁾ Step-Dim (Bi-Level) and Fifth Light (DALI) only available for 3,200 lumen. ⁽⁶⁾ Must be used in conjunction with a DALI control system. For complete DALI solutions by Fifth Light, visit www.eaton.com/lightingsystems. ⁽⁷⁾ Used to transfer fixture to secondary power source for life-safety operation. When used with a dimming fixture, two devices are required to ensure control is disabled while operating under emergency power. ⁽⁸⁾ DesignLights Consortium™ Qualified and classified for both DLC Standard and DLC Premium, refer to www.designlights.org for details.

Specifications & dimensions subject to change without notice. Consult your Eaton Representative for availability and ordering information.

SHIPPING DATA

Catalog No.	Wt.	Pallet
22FR-LD4	10 lbs.	48