Metalux

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.

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
Metalux LED luminaires come standard with 0-10V dimming driver (10% standard, 1% optional).

Options compatible with Eaton's Connected Lighting Systems:
• WaveLinx sensor
• LumaWatt Pro sensor
• SVPD sensor
• DLVP sensor and driver
• Fifth Light DALI driver

Other options include step-dimming and 3rd party drivers. Refer to the Connected Lighting options page and ordering information for more details.

Electrical
Long-Life LED system coupled with electrical driver to deliver optimal performance. LED's available in 2700, 3000K, 3500K, 4000K or 5000K with min. 80 CRI. Rated life based on TM21 is greater than L88 at 60,000 hours. 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. Emergency/generator transfer options available – 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.
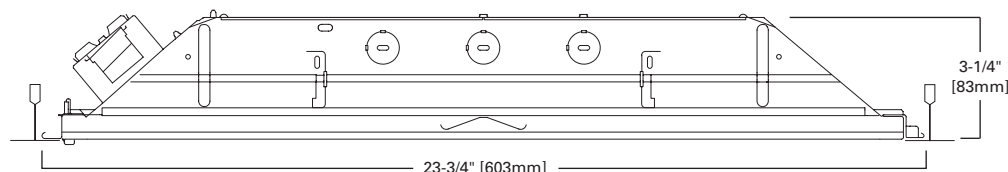
Hinging / Latching
Cam steel latches with baked white enamel finish. Safety-lock T-hinges allow hinging and latching from either side.
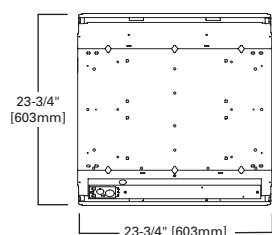
Frame/Optical Shielding
Curved, Frost lens within steel hinged door frame. Lens offers a balance of aesthetics and light stability.

Compliance
Indoor luminaires are cULus listed for 25°C ambient environments. Fixtures are suitable for direct insulation contact and are damp location listed. RoHS compliant. LED components 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. Can be used for State of California Title 24 high efficacy luminaire.

22FR
LED

2' X 2' LED LUMINAIRE

Premium Recessed Commercial LED Luminaire

For Use in Insulated Ceilings

Connected Systems
CLICK HERE

DLC LISTED   DLC LISTED PREMIUM

Efficiency Standards
T24 Can be used to comply with California Title 24 Non-Residential

MWS MODULAR WIRING SYSTEM
CLICK HERE

3-1/4" [83mm]

23-3/4" [603mm]

MOUNTING DATA

23-3/4" [603mm]

23-3/4" [603mm]

CEILING COMPATIBILITY

G Grid/Lay-in Standard

G Concealed T

G Slot Grid

Ceiling Type	Trim Type
Exposed Grid	G
Concealed T	G
Slot Grid	G

(Verify compatibility/ consult factory.)

LINEAR DISCONNECT

Safe and convenient means of disconnecting power

FAT•N
Powering Business Worldwide

ISO SYSTEMS CERTIFIED

WATTAGE

Catalog Number	Performance Type	Nominal Lumens	Wattage	Efficacy (lm/W @ 3500K)
22FR-24-UNV-L8XX-CD1-U	Standard	2345	20.2	120.0
22FR-32-UNV-L8XX-CD1-U	Standard	3313	29.4	110.0
22FR-24-HP-UNV-L8XX-CD1-U	Premium	2365	19.4	126.2
22FR-32-HP-UNV-L8XX-CD1-U	Premium	3238	26.1	121.8

Notes: All models also available in 2700K, 3000K, 3500K, 4000K, and 5000K.
Lumens based on 3500K. Use lumen multiplier for other performance values.

CCT TABLE

Approximate Color Temperature Multiplier	
2700K	.93
3000K	.98
3500K	1.0
4000K	1.02
5000K	1.02

PHOTOMETRICS
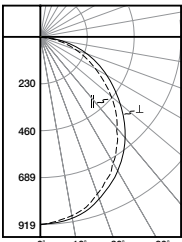
22FR-LD4-24-UNV-L835-CD1-U

Electronic Driver

Linear LED 3500K

Spacing criterion: (II) 1.17 x mounting height, (⊥) 1.23 x mounting height

Lumens: 2419

Input Watts: 20.2W

Efficacy: 119.8 lm/W

Test Report: 22FR-LD4-24-UNV-L835-CD1-U.IES

Candlepower

Angle	Along ‖	45°	Across ⊥
0	916	916	916
5	907	912	915
10	890	897	902
15	867	870	877
20	820	837	846
25	771	789	806
30	716	742	759
35	651	679	706
40	587	616	647
45	525	551	585
50	451	485	521
55	383	418	453
60	319	348	382
65	260	283	313
70	195	220	244
75	137	157	177
80	85	98	112
85	37	46	51
90	0	0	0

Coefficients of Utilization

Effective floor cavity reflectance 20%

rc	80%			70%			50%			30%			10%			0%
rw	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	0
RCR																		
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	76	82	78	74	79	75	72	70
3	90	80	72	65	88	78	71	65	75	69	64	73	67	62	70	65	61	59
4	83	71	62	55	81	70	61	55	67	60	54	65	59	54	63	57	53	51
5	76	63	55	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	30	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	696	28.8
0-40	1122	46.4
0-60	1921	79.4
0-90	2419	96.3
0-180	2419	100.0

Luminance Data

Angle in Deg	Average 0-Deg cd/sm	Average 45-Deg cd/sm	Average 90-Deg cd/sm
45	2378	2495	2649
55	2138	2334	2529
65	1970	2144	2372
75	1695	1943	2190
85	1360	1690	1874
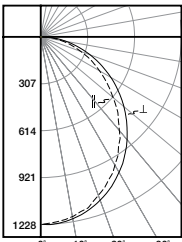
22FR-LD4-32-UNV-L835-CD1-U

Electronic Driver

Linear LED 3500K

Spacing criterion: (II) 1.17 x mounting height, (⊥) 1.23 x mounting height

Lumens: 3231

Input Watts: 29.4W

Efficacy: 109.9 lm/W

Test Report: 22FR-LD4-32-UNV-L835-CD1-U

Candlepower

Angle	Along ‖	45°	Across ⊥
0	1225	1225	1225
5	1211	1219	1223
10	1189	1198	1203
15	1158	1162	1172
20	1094	1117	1129
25	1030	1054	1077
30	957	991	1013
35	871	909	942
40	784	823	865
45	701	737	781
50	600	648	695
55	513	558	604
60	427	467	512
65	347	379	419
70	260	293	326
75	185	209	234
80	113	131	150
85	51	60	68
90	0	0	0

Coefficients of Utilization

Effective floor cavity reflectance 20%

rc	80%			70%			50%			30%			10%			0%
rw	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	0
RCR																		
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	89	90	88	86	84
2	99	91	84	78	96	89	83	77	85	80	76	82	78	74	79	75	72	70
3	90	80	72	65	88	78	71	65	75	69	64	73	67	62	70	65	61	59
4	83	71	62	55	81	70	61	55	67	60	54	65	59	54	63	57	53	51
5	76	63	55	48	74	62	54	48	60	53	47	58	52	47	56	51	46	44
6	71	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	48	39	33	59	47	39	33	45	38	33	44	38	33	43	37	33	31
9	57	44	35	30	56	43	35	30	42	35	30	41	34	30	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	930	28.8
0-40	1498	46.4
0-60	2566	79.4
0-90	3231	100.0
0-180	3231	100.0

Luminance Data

Angle in Deg	Average 0-Deg cd/sm	Average 45-Deg cd/sm	Average 90-Deg cd/sm
45	3175	3338	3537
55	2864	3116	3372
65	2629	2872	3175
75	2289	2586	2895
85	1874	2205	2499

ORDERING INFORMATION

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

Rating
[Blank]= Standard
ATW-SW4= Chicago Rated

Width / Length
22= 2' x 2'

Series [7]
FR= Premium Commercial Luminaire

Door Frame
Standard= Flat White Steel Door (Leave Blank)

LED Type
LD4= LED 4.0

LED Lumens Output [4]
Stock
32= 3200
MTO
24= 2400

Shielding
[Blank]= Curved Frosted Acrylic Lens (standard)
HP= High Performance, Curved Frosted Acrylic Lens

Voltage [2]
347V= 347 Volt
UNV= Universal Voltage 120-277
48V= 48 Volt Low-voltage (Class 2)

Options
Emergency
EL7W= 7-watt, 120V-277V emergency battery pack installed [3]
EL14W= 14-watt 120V-277V emergency battery pack installed [3]
ELV7W= 7-watt, DLVP-compatible low voltage emergency battery pack installed [C]
ELV14W= 14-watt DLVP-compatible low voltage emergency battery pack installed [C]
GTR2= Bodine Generator Transfer Relay [6]
ETRD= Iota Emergency Transfer Relay with dimming control [6]

CCT
L827= 2700K
L830= 3000K
L835= 3500K
L840= 4000K
L850= 5000K

Flex
A3/8-4/18GDIM= 3/8" Flex with 0-10V Dimming Leads
Multiple other configurations available. See below for details.

Driver Type
CD= 0-10V Dimming Driver (10%-100% Dimming)
HCD= 0-10V Dimming Driver (1%-100% Dimming)
SR= Sensor-ready Dimming Driver for LWIPD1 option (1%-100% Dimming) [B]
5LTD= Fifth Light DALI Driver (10%-100% Dimming) [5], [E]
5LTHD= Fifth Light Dimming Driver (1%-100% Dimming) [5], [E]
LV1= DLVP Dimming Driver (0%-100% Dimming) [C]
SD= Step Dimming Driver (50% or 100% Dimming)
LH= Lutron HiLume (LDE1 series) 1%-100% EcoSystem Driver with Soft-on Fade to Black dimming [F]
L5= Lutron 5 Series (LDE5-Series) 5%-100% EcoSystem Driver [F]

Number of Drivers
1= 1 Driver

Options
PMW= Paint Matte White

Integrated Sensing Systems
SWPD1= WaveLinx Wireless Integrated Sensor [A]
LWIPD1= LumaWatt Pro Wireless Integrated Sensor [B]
LWTPD1= LumaWatt Pro Wireless Tile-mount Sensor [B]
SLVPD1= DLVP Low-voltage Integrated Sensor [C]
SVPD1= 0-10V Stand-alone Integrated Sensor [D]

Connected Systems
CLICK HERE

Packaging
U= Unit Pack
PAL= Job Pack, out of carton
PALC= Job Pack, in carton

ACCESSORIES

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 [D]
ISHH-02= Personal Control Remote for Integrated Sensor [D]

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] Must be used in conjunction with a DALI control system. For complete DALI soloutions by Fifth Light, visit www.eaton.com/lightingsystems. [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. ETRD option only requires one relay when used on a dimming fixture. Must specify voltage as 120V or 277V when ordering these devices. [7] DesignLights Consortium® Qualified and classified for both DLC Standard and DLC Premium, refer to www.designlights.org for details.

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: [A] Consult WaveLinx system pages for additional details and compatibility. [B] Consult LumaWatt Pro system pages for additional details and compatibility. [C] Consult DLVP system pages for additional details and compatibility. [D] Consult SVPD series system pages for additional details and compatibility. [E] Consult Fifth Light system pages for additional details and compatibility. [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.

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.
A3/8-4/18GDIM series notes: Factory installed dimming option 3/8" flexible metal conduit with 2-#18 power and ground wires and 2-#18 UL-listed jacketed 0-10V +/- control wires. Meets UL 66, 83, 1479, 1569, 1581, 2556. NEC® 250.118, 300.22(C), 392, 396, 330, 501, 502, 503, 530, 504, 505, 518, 520, 530, 645, 72; Federal Specification A-A-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).

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

Specifications and dimensions subject to change without notice.