

FEATURES

- Architecturally enhanced triple lens design
- Full distribution provides controlled high angle light for visual comfort and more inviting spaces
- Advanced optics produce high efficiencies
- Hinged optical system allows easy access to lamps and electrical from below the ceiling
- Lenses interlock for structural integrity
- Two optional lens aesthetics
- Exclusive optional T8 EnergyMax® tuned 1.04 ballast factor ballast
- Step and full dimming options for both T5 and T8 expand energy savings opportunities
- Most configurations produce low W/ft² to meet the most restrictive lighting power density codes
- Available with exclusive wiHUBB technology preinstalled

HUBBELL SUSTAINABLE DESIGN SOLUTION FEATURES*

- Made with 90% recycled steel
- Made of 80% recyclable materials by weight
- Job pack available for minimizing amount of packaging material at job site
- Individual cartons made of 100% recycled corrugated

*Please go to <http://www.hsi/productsustain.com> for Hubbell Sustainable Design Solutions Feature Criteria.

PROJECT INFORMATION

Project Name _____

Type _____

Catalog No. _____

Date _____

CONSTRUCTION

Luminaire housing, end caps, and reflectors are die-formed code-gauge cold-rolled steel. Optical system hinges for easy access to lamps and electrical components. Mechanical light trap prevents light leaks. Latches are spring loaded.

ELECTRICAL

Standard class "P", thermally protected, autoresetting HPF ballast, sound rated A. CEE NEMA Premium compliant. All ballast leads extend a minimum of 6" through access location. NEC/CEC-compliant ballast disconnect is standard.

FINISH

All visible parts are custom formulated soft, non-glare high-reflectance white powder coat finish, painted after fabrication.

EMERGENCY

Field installation of battery packs requires use of remote test switch.

SHIELDING

Lenses are high transmission extruded acrylic.

CEILING COMPATIBILITY

Luminaire is available to fit exposed grid ceilings, or hard ceilings when a flange kit is ordered. Some options may increase fixture depth. For information on compatibility with specific ceilings, or where plenum depth is a problem, contact your Columbia Lighting representative. Four integral T-bar clips are standard.

INSTALLATION

An access plate is furnished with each recessed fixture for fast wiring connections without the necessity to open the fixture or wireway.

CERTIFICATION

All luminaires are built to UL 1598 standards and bear appropriate UL and cUL or CSA labels. Damp location labeling is standard. Emergency-equipped fixtures labeled UL 924.

BALLASTS

Energy efficient, thermally protected, automatic resetting, Class P, high power factor, sound rated A, magnetic or electronic ballasts. CEE NEMA Premium compliant.

ORDERING INFORMATION

EXAMPLE SER24-232G-RF-E104U-F0835

SER 24 -									
MODEL	NO. OF LAMPS	CEILING TYPE	SHIELDING	REFLECTOR	VOLTAGE	OPTIONS			
SER Serrano® Recessed Architectural Luminaire	1 One 2 Two 3 Three	G Grid SM Surface Mount For hard ceilings use flange kit.	C Contour R Rail	P Performance F Full	U 120V-277V 347 347V ²	C388 3-Wire Flex C488 4-Wire Flex C588 5-Wire Flex EL Emergency Battery Pack GLR Fast Blow Fuse GMF Slow Blow Fuse NYC NYC Compliant WIH wiHUBB Enabled ⁴			
SIZE	LAMP TYPE	BALLAST			LAMPS				
24 2' x 4'	28 4', T5: 28 Watt 32 4', T8: 32, 30, 28, or 25 Watt 54 4', T5HO: 54 or 51 Watt	E Electronic T8, 0.88 Ballast Factor, Instant Start ED Electronic T8, T5, T5HO Dimming, Programmed Start ^{1,2} ESD Electronic T8, 0.88 Ballast Factor, Step Dimming, Programmed Start ¹ ELW Electronic T8, 0.77 Ballast Factor, Low Wattage, Instant Start EHL Electronic T8, 1.18 Ballast Factor, High Wattage, Instant Start E104 Electronic T8, 1.04 Ballast Factor, Instant Start (N/A 1-Lamp) ESD104 Electronic T8, 1.04 Ballast Factor, Step Dimming, Programmed Start ¹ EP104 Electronic T8, 1.04 Ballast Factor, Programmed Start EP Electronic T5, T5HO, 1.0 Ballast Factor or T8, 0.88 Ballast Factor, Programmed Start EP95 Electronic T5, 0.95 Ballast Factor, Programmed Start (N/A T5HO, 1-Lamp) ESD95 Electronic T5, 0.95 Ballast Factor, Step Dimming, Programmed Start (N/A T5HO, 1-Lamp) EP115 Electronic T5, 1.15 Ballast Factor, Programmed Start (N/A T5HO, 1-Lamp) ESD115 Electronic T5, 1.15 Ballast Factor, Step Dimming, Programmed Start (N/A T5HO) ESD80 Electronic T5HO, 0.80 Ballast Factor, Step Dimming, Programmed Start (2-Lamp 54W only)	F0730 30K 75CRI T8 Lamps Installed F0735 35K 75CRI T8 Lamps Installed F0741 41K 75CRI T8 Lamps Installed F0830 30K 82CRI T8 Lamps Installed F0835 35K 82CRI T8 Lamps Installed F0841 41K 82CRI T8 Lamps Installed F028830 30K 82CRI 28W T8 Lamps Installed ³ F028835 35K 82CRI 28W T8 Lamps Installed ³ F028841 41K 82CRI 28W T8 Lamps Installed ³ F0H830 30K High Lumen T8 Lamps Installed F0H835 35K High Lumen T8 Lamps Installed F0H841 41K High Lumen T8 Lamps Installed F5830 30K 85CRI T5 or T5HO Lamps Installed F5835 35K 85CRI T5 or T5HO Lamps Installed F5841 41K 85CRI T5 or T5HO Lamps Installed F5H830 30K High Lumen T5 Lamps Installed F5H835 35K High Lumen T5 Lamps Installed F5H841 41K High Lumen T5 Lamps Installed						

ACCESSORIES (ORDER SEPARATELY)

- FK24 2' x 4' Single Flange Kit
- FKCR Flange Kit Row Adaptor

Damp Label - standard

¹ Not compatible with T8 25, 28, or 30 watt energy savings lamps.
² Where available.
³ Not recommended for use with step or full dimming.
⁴ Not available with surface mount.



PHOTOMETRIC DATA

Test 4460 Test Date 9/19/2011

LUMINAIRE DATA

Luminaire	SER24-232G-CP-EU
	SER Serrano, Recessed Architectural 2 x 4 2-lamp with Contour center lens, linear prisms side lenses, and performance reflector
Ballast	ICN-2P32-SC
Ballast Factor	0.88
Lamp	F28T8
Lumens per Lamp	2725
Watts	50
Mounting	Recessed
Shielding Angle	0° = 90 90° = 90
Spacing Criterion	0° = 1.23 90° = 1.55
Luminous Opening in Feet	Length: 1.83 Width: 3.83 Height: 0.00

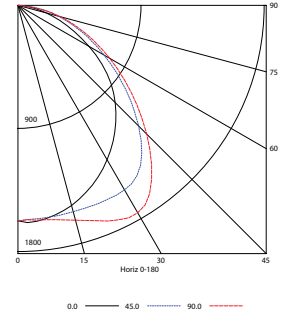
AVG. LUMINANCE (Candela/Sq. M.)

	0.0	22.5	45.0	67.5	90.0
Average Luminance Angle	0	2417	2417	2417	2417
	30	2309	2451	2761	3022
	40	2229	2476	2821	3007
	45	2183	2415	2711	2867
	50	2119	2289	2559	2700
	55	2005	2126	2396	2533
	60	1843	1963	2239	2374
	65	1653	1802	2093	2228
	70	1464	1639	1949	2079
	75	1276	1478	1816	1940
	80	1061	1318	1707	1689
	85	811	1145	1198	811

COEFFICIENTS OF UTILIZATION (%)

RCR	80				70				50				0			
	RW	70	50	30	10	70	50	30	10	50	30	10	0	30	10	0
1	98	93	90	86	95	91	88	85	88	85	82	75				
2	89	82	76	71	87	80	74	70	77	72	68	63				
3	81	72	64	59	79	70	64	58	68	62	57	53				
4	74	64	56	50	72	62	55	49	60	54	49	45				
5	68	57	49	43	66	56	48	43	54	47	42	39				
6	63	51	43	37	61	50	43	37	49	42	37	34				
7	58	46	38	33	57	45	38	33	44	37	32	30				
8	54	42	34	29	53	41	34	29	40	34	29	27				
9	51	39	31	26	49	38	31	26	37	31	26	24				
10	47	36	28	24	46	35	28	24	34	28	24	22				

INDOOR CANDELA PLOT



ZONAL LUMEN SUMMARY

Zone	Lumens	% Lamp	% Fixt.
0-30	1314	24.1	26.9
0-40	2237	41.0	45.8
0-60	3951	72.5	81.0
0-90	4879	89.5	100.0
0-180	4879	89.5	100.0

RCR = Room Cavity Ratio
RC = Effective Ceiling Cavity Reflectance RW = Wall Reflectance

ENERGY DATA

Total Luminaire Efficiency	89.5%
Luminaire Efficacy Rating (LER)	86
ANSI/IESNA RP-1-2004 Compliance	Noncompliant
Comparative Yearly Lighting Energy Cost per 1000 Lumens	\$2.79 based on 3000 hrs. and \$0.08 per KWH

LUMINAIRE DATA

Luminaire	SER24-228G-CP-EPU
	SER Serrano, Recessed Architectural 2 x 4 2-lamp with Contour center lens, linear prisms side lenses, and performance reflector
Ballast	ICN-2S28-N
Ballast Factor	1.00
Lamp	F28T5
Lumens per Lamp	2625
Watts	62
Mounting	Recessed
Shielding Angle	0° = 90 90° = 90
Spacing Criterion	0° = 1.22 90° = 1.51
Luminous Opening in Feet	Length: 3.83 Width: 1.83 Height: 0.00

AVG. LUMINANCE (Candela/Sq. M.)

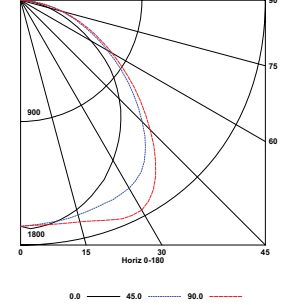
	0.0	22.5	45.0	67.5	90.0
Average Luminance Angle	0	2459	2459	2459	2459
	30	2321	2451	2727	2961
	40	2215	2442	2757	2949
	45	2146	2370	2648	2808
	50	2069	2236	2506	2645
	55	1944	2072	2348	2471
	60	1769	1898	2184	2297
	65	1599	1737	2039	2148
	70	1423	1581	1899	2003
	75	1234	1424	1774	1869
	80	1017	1247	1636	1592
	85	775	1093	1093	740

COEFFICIENTS OF UTILIZATION (%)

RCR	80				70				50				0			
	RW	70	50	30	10	70	50	30	10	50	30	10	0	30	10	0
1	100	95	92	88	97	93	90	87	90	87	84	77				
2	91	83	77	72	88	82	76	71	78	74	70	65				
3	83	73	66	60	81	72	65	60	69	63	59	55				
4	76	65	57	51	74	64	56	51	62	55	50	47				
5	70	58	50	44	68	57	49	44	55	48	43	40				
6	64	52	44	38	63	51	44	38	50	43	38	35				
7	60	47	39	34	58	47	39	34	45	38	33	31				
8	56	43	35	30	54	43	35	30	41	35	30	28				
9	52	40	32	27	51	39	32	27	38	31	27	25				
10	49	37	29	24	47	36	29	24	35	29	24	22				

Test 4540 Test Date 10/25/2011

INDOOR CANDELA PLOT



ZONAL LUMEN SUMMARY

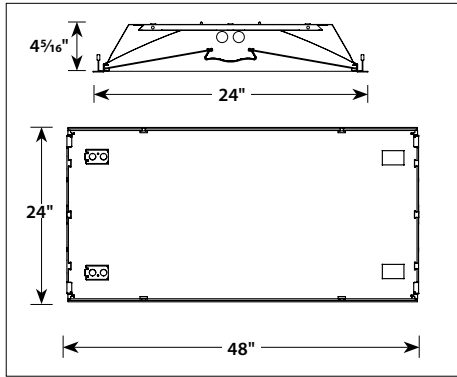
Zone	Lumens	% Lamp	% Fixt.
0-30	1316	25.1	27.4
0-40	2224	42.4	46.4
0-60	3899	74.3	81.3
0-90	4796	91.4	100.0
0-180	4796	91.4	100.0

RCR = Room Cavity Ratio
RC = Effective Ceiling Cavity Reflectance RW = Wall Reflectance

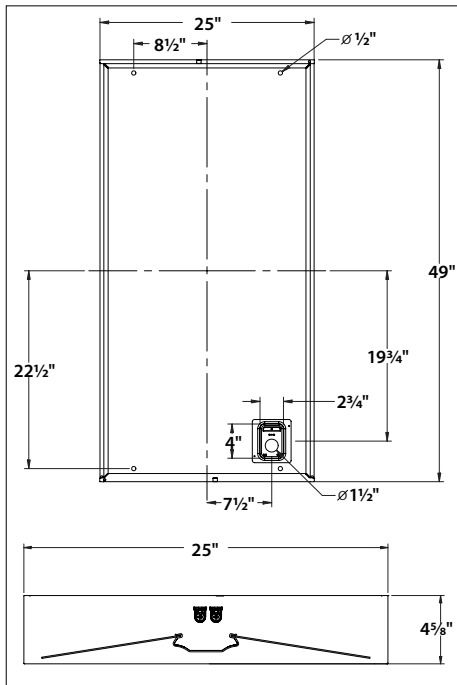
ENERGY DATA

Total Luminaire Efficiency	91.4%
Luminaire Efficacy Rating (LER)	77
ANSI/IESNA RP-1-2004 Compliance	Noncompliant
Comparative Yearly Lighting Energy Cost per 1000 Lumens	\$3.12 based on 3000 hrs. and \$0.08 per KWH

DIMENSIONAL DATA

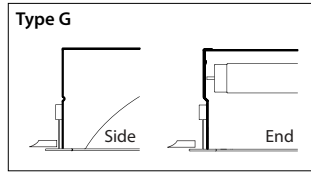


DIMENSIONAL DATA - SURFACE MOUNT

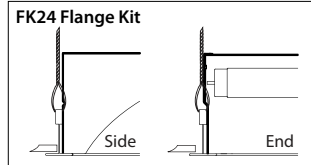


NOTE: All dimensions are in inches; dimensions and specifications are subject to change without notice. Please consult factory or check sample for verification.

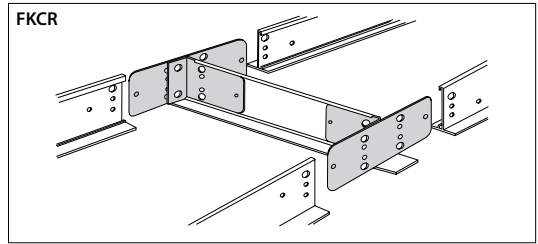
CEILING COMPATIBILITY



For lay-in installation in exposed grid ceilings. Maximum tee widths of 1" and maximum tee heights of 2" allowed.



For hard ceiling applications, order FK24 flange kit. Flange kit wires directly into concealed ceiling opening for a clean, finished appearance.



For flanged fixtures in row configurations, the FKCR adapter bracket kit is required in addition to the FK24 kit. Order one less FKCR than the total number of fixtures in row. (Example: Row of two, order (2) FK24 & (1) FKCR)

Row cut out dimensions using FK24s & FKCR adapters:
Width 24 3/8", Length [48" x (# in row)] + 3/8".
Example: (48" x 2) + 3/8" = 96 3/8"

Flange kit cut out dimension for single unit only: 24 3/8" x 48 3/8"