

DESCRIPTION

The Fail-Safe CFS is designed for use in non-laminar air flow clean rooms. This surface mounted clean room luminaire has a hole-free design and is enclosed and gasketed to protect against infiltration of particles and airborne bacteria. The sealed housing and door frame allow relamping without contamination of the clean areas. UL/cUL listed for wet locations, and manufactured in accordance with U.S.D.A., F.D.A., N.S.F. and Federal Standard 209E.

Catalog #		Type	
Project			
Comments		Date	
Prepared by			

SPECIFICATION FEATURES

Application

The CFS is suitable for use in I.E.S. Class 100, 1,000, 10,000 and 100,000 clean room environments. Applications include clean rooms, technical and biomedical labs, food processing/testing centers and pharmaceutical labs.

Fasteners

Flush mounted, stainless steel machine screws secure through captive cage nuts in housing and are evenly spaced to compress gasketing on all sides.

Housing

Die-formed, 20 ga. CRS with tightly butted and seam welded, sealed end caps. Contains no holes that would allow air passage.

Finish

High gloss, electrostatically applied, white powder coat finish, average minimum reflectance 92%. 1000 hour salt spray test.

Hinge

Two braided, stainless steel cables on one side of door provide hinging.

Door

One piece, 18 ga. door with baked white polyester powder coat, fully gasketed, outside door with dieformed and beveled edges eliminates seams which could entrap microscopic contaminants. Optional doors available.

Gasket

White, closed cell, Flexiseal(TM) gasketing surrounds perimeter of lens to seal lens to door frame and around perimeter of door to seal door to housing.

Access

A gasketed access plate inside the housing with two flattened, 7/8" diameter knockouts allows connection of vapor tight conduit fitting.

Lens

Lens is clear Pattern 12 acrylic with prisms positioned inside fixture and smooth surface on the outside for easy cleaning.

Lamps

(By Others)

Lens Retention

Unique, Particulock(TM) lens retention system utilizes continuous, 18 ga. media clampdowns to sandwich gasketing and integrate lens and door frame for even environmental seal.

Ballast

Electronic Class P, CBM/ETL ballast.

Labels

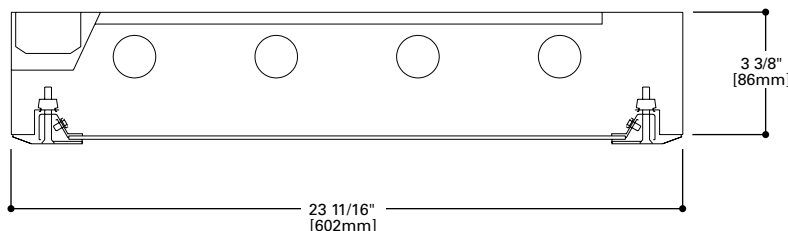
UL/cUL listed for wet location under covered ceiling.



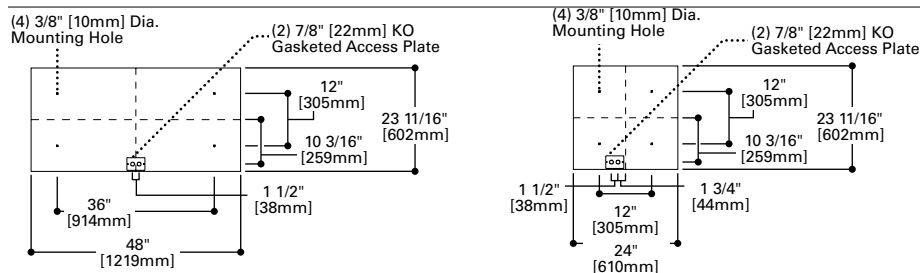
CFS24LP

2x2
2x4
Cleanroom

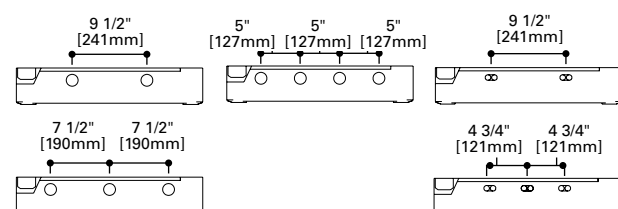
SURFACE
Overlapping Door



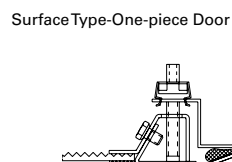
MOUNTING DIMENSIONS



LAMP CONFIGURATIONS



DOOR FRAME



ENERGY DATA

Input Watts:

Electronic Ballasts & STD Lamps
(2) 40W Biaxial Fluorescents: 68W
(3) 40W Biaxial Fluorescents: 101W

Electronic Ballasts & STD Lamps
(2) 17W T8 Fluorescents: 34W
(3) 17W T8 Fluorescents: 47W
(4) 17W T8 Fluorescents: 61W
(2) 32W T8 Fluorescents: 58W
(3) 32W T8 Fluorescents: 85W
(4) 32W T8 Fluorescents: 112W

Electronic Ballasts & STD Lamps
(2) 14W T5 Fluorescents: 35W
(3) 14W T5 Fluorescents: 55W
(4) 14W T5 Fluorescents: 70W
(2) 28W T5 Fluorescents: 63W
(3) 28W T5 Fluorescents: 97W
(4) 28W T5 Fluorescents: 126W

For High Output Electronic Ballast
Data Consult Cooper Lighting
Representative.

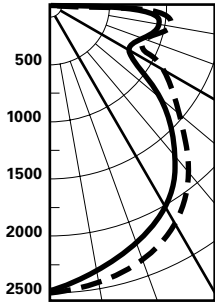
ORDERING INFORMATION

SAMPLE NUMBER: CFS24LP-332-120-IP12-EB81

Product Family	Lamp Type	Voltage	Lens Type ³	Ballast	Overlapping Door/Finish Options	Options
CFS24LP						
CFS24LP=Fluorescent Surface Type		120= 120V 277=277V 347=347V UNV=120V-277V	IK12=Pattern 12 Prismatic Acrylic, 0.110" thick IP12=Pattern 12 Prismatic Polycarbonate, 0.110" thick KSH25=Linear Ribbed Acrylic, 0.115" thick ¹ 93=Prismatic Tempered Glass, 0.156" thick	Electronic Ballast ² EB81= (1) Ballast for use with T8 Lamp EB82=(2) Ballasts for use with T8 Lamp EBX1=EB1 Ballast for use with Biaxial Lamp EBX2=(2) Ballast for use with Biaxial Lamps EB51= (1) Ballast for use with T5 Lamp EB52=(2) Ballasts for use with T5 Lamp	Blank=Steel, powder coat painted white ALP=Aluminum Door, powder coat painted white ALX=Extruded Aluminum Door, Clear anodized finish ³ ALXP=Extruded Aluminum Door, powder coat painted white SSN=Stainless Steel Door, Brushed finish SSP=Stainless Steel Door, powder coat painted white	EL4=EM Pack, T8, BX EL5=EM Pack, T5, T5HO GLR=Fuse and Holder RIF=Radio Frequency Interference Filter Housing Options ALH=Aluminum, powder coat painted white SHN=Stainless Steel, Brushed finish SHP=Stainless Steel, powder coat painted white AM=Anti-microbial finish
2' Nom. Length ⁴ T5 Fluorescent 214=(2) 14W Lamp 314=(3) 14W Lamps 414=(4) 14W Lamps 224=(2) 24W HO Lamp 324=(3) 24W HO Lamps 424=(4) 24W HO Lamps T8 Fluorescent 217=(2) 17W Lamp 317=(3) 17W Lamps 417=(4) 17W Lamps 2U6T8=(2) 32W Lamp 2U15/8=(2) 31W Lamps 3U15/8=(3) 31W Lamps Biaxial Fluorescent 140BX=(1) 40W Lamp 240BX=(2) 40W Lamps 340BX=(3) 40W Lamps	4' Nom. Length T5 Fluorescent 128=(1) 28W Lamp 228=(2) 28W Lamps 328=(3) 28W Lamps 428=(4) 28W Lamps 628=(6) 28W Lamps 154=(1) 54W HO Lamp 254=(2) 54W HO Lamps 354=(3) 54W HO Lamps 454=(4) 54W HO Lamps 654=(6) 54W HO Lamps T8 Fluorescent 132=(1) 32W Lamp 232=(2) 32W Lamps 332=(3) 32W Lamps 432=(4) 32W Lamps 632=(6) 32W Lamps					
NOTES: Electronic ballast may cause interference with other electronic devices. If interference occurs, move the device away from the product or plug/connect into a different circuit/outlet. ¹ The KSH25 provides improved visual performance and wide angle distribution. This lens has an integral prism pattern designed so that prisms face the lamp cavity and still supply superior photometrics. Highly recommended for all high-tech manufacturing environments. ² For specific electronic ballast, specify brand and catalog number. ³ Refer to Lens Ordering Guide for additional lens choices. ⁴ EM Pack not available with (2) T5 ballasts.						

PHOTOMETRICS

Candlepower Distribution



Test No. ITL36036
CFS-24-440-1K12
Lamp=(4) 40WT12
Lumens=8526
Spacing Criteria
L=1.4 II=1.2
Efficiency=67.7%



Average Luminance

Deg.	⊥	∥
45	1595	1323
55	1154	980
65	822	779
75	871	857
85	1018	933

Zonal Lumen Summary

Zone	Lumens	%Lamp	%Luminaire
0-30	2728	21.7	32.0
0-40	4499	35.7	52.8
0-60	7316	58.1	85.8
0-90	8526	67.7	100.0
90-180	0	0.0	0.0
0-180	8526	67.7	100.0

Coefficient of Utilization

rc	80%				70%				50%				30%				10%				0%			
	rw	70	50	30	10	50	30	10	50	10	50	10	50	10	50	10	50	10	50	10	50	10	0	
RCR																								
0	81	81	81	81	79	79	79	75	75	72	72	69	69	68										
1	75	72	69	67	70	68	66	67	64	65	62	62	60	59										
2	69	64	60	57	63	59	56	61	55	58	54	56	52	51										
3	64	58	53	49	57	52	48	55	48	53	47	51	46	45										
4	59	52	46	42	51	46	42	49	42	48	41	46	40	39										
5	54	46	41	37	46	40	36	44	36	43	36	42	35	34										
6	50	42	36	32	41	36	32	40	32	39	31	38	31	30										
7	46	38	32	28	37	32	28	36	28	35	28	34	28	26										
8	43	34	28	25	33	28	24	33	24	32	24	31	24	23										
9	39	30	25	21	30	25	21	29	21	29	21	28	21	20										
10	37	28	22	19	27	22	19	27	19	26	19	25	19	17										

rc=Ceiling reflectance, rw=Wall reflectance, RCR=Room cavity ratio
CU Data Based on 20% Effective Floor Cavity Reflectance.