FAIL-SAFE®

DESCRIPTION

The 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. and F.D.A. All fixtures have been tested and reported in compliance with Federal Standard 209E, Class 100 (M3.5) and above.

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 die-formed 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.

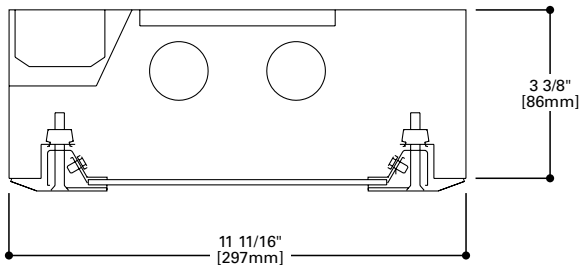
Ballast
Electronic Class P, CBM/ETL ballast.

Labels
UL/cUL listed for wet location under covered ceiling.

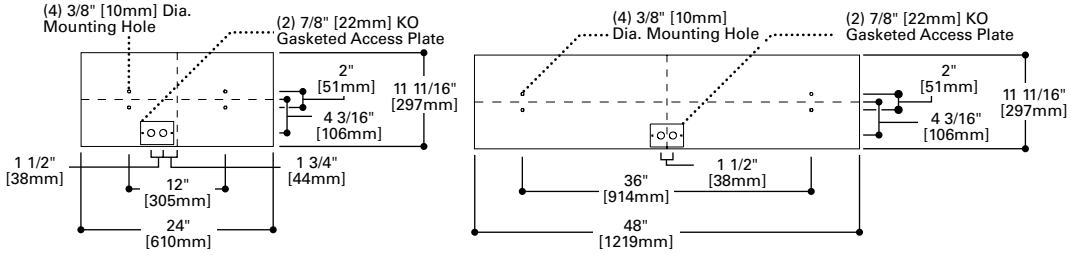
CFS12LP

1x2
1x4
Cleanroom

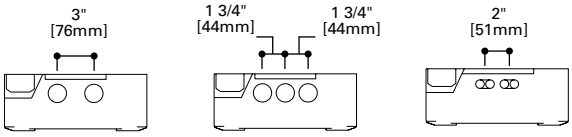
SURFACE
Overlapping Door



MOUNTING DIMENSIONS

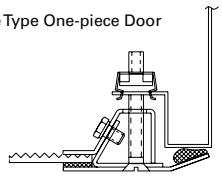


LAMP CONFIGURATIONS



DOOR FRAME

Surface Type One-piece Door



ENERGY DATA

Input Watts:

Electronic Ballasts & STD Lamps
(1) 40W Biaxial Fluorescent: 41W
(2) 40W Biaxial Fluorescents: 68W

Electronic Ballasts & STD Lamps
(1) 17W T8 Fluorescent: 20W
(2) 17W T8 Fluorescents: 34W
(3) 17W T8 Fluorescents: 47W
(1) 32W T8 Fluorescent: 32W
(2) 32W T8 Fluorescents: 58W
(3) 32W T8 Fluorescents: 85W

Electronic Ballasts & STD Lamps
(1) 14W T5 Fluorescent: 20W
(2) 14W T5 Fluorescents: 35W
(3) 14W T5 Fluorescents: 55W
(1) 28W T5 Fluorescent: 34W
(2) 28W T5 Fluorescents: 63W
(3) 28W T5 Fluorescents: 97W

For High Output Electronic Ballast Data, Consult Cooper Lighting Representative.

COOPER Lighting
www.cooperlighting.com

Specifications and dimensions subject to change without notice.
Consult your representative for additional options and finishes.

ORDERING INFORMATION

SAMPLE NUMBER: CFS12LP-332-120-IP12-EB81

Product Family	Lamp Type	Voltage	Lens Type [3]	Ballast	Overlapping Door/Finish Options	Options
CFS12LP						

CFS12LP=Fluorescent Surface Type

2' Nom. Length

T5 Fluorescent
114=(1) 14W Lamp
214=(2) 14W Lamps
314=(3) 14W Lamps
124=(1) 24W HO Lamp
224=(2) 24W HO Lamps
324=(3) 24W HO Lamps

T8 Fluorescent
117=(1) 17W Lamp
217=(2) 17W Lamps
317=(3) 17W Lamps
2U6T8=(2) 32W Lamps
2U15/8=(2) 31W Lamps
3U15/8=(3) 31W Lamps

Biaxial Fluorescent
140BX=(1) 40W Lamp
240BX=(2) 40W Lamps

4' Nom. Length

T5 Fluorescent
128=(1) 28W Lamp
228=(2) 28W Lamps
328=(3) 28W Lamps
154=(1) 54W HO Lamp
254=(2) 54W HO Lamps
354=(3) 54W HO Lamps

T8 Fluorescent
132=(1) 32W Lamp
232=(2) 32W Lamps
332=(3) 32W Lamps

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 Alumium Door, Clear anodized finish
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

NOTES:

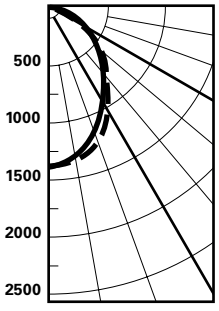
1 The KSH25 provides improved visual performance and wide angle distribution. This lens has an integral prism pattern designed so that prisms face the lamp cavity and still supply superior photometrics. Highly recommended for all high-tech manufacturing environments.

2 For specific electronic ballast, specify brand and catalog number.

3 Refer to Lens Ordering Guide for additional lens choices.

PHOTOMETRICS

Candlepower Distribution



Test No. 168P125
CFS12LP-232-120-IK12
Lamp=F032/35K
Lumens=2800
Spacing Criteria
⊥=1.2 II=1.2
Efficiency=63.1%

Average Luminance

Deg.	⊥	II
45	1516	1511
55	1364	1410
65	1190	1287
75	966	1074
85	683	668

Zonal Lumen Summary

Zone	Lumens	%Lamp	%Fixt
0-30	1047	18.7	29.6
0-40	1680	30.0	47.6
0-60	2862	51.1	81.0
0-90	3532	63.1	100.0
90-180	0	0.0	0.0
0-180	3532	63.1	100.0

Coefficient of Utilization

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	75	75	75	75	73	73	73	73	70	70	70	67	67	67	64	64	64	63
1	69	67	64	62	68	65	63	61	63	61	59	60	59	57	58	57	56	54
2	64	59	55	52	62	58	54	51	56	53	50	54	51	49	52	50	48	46
3	59	52	48	44	57	51	47	44	50	46	43	48	45	42	46	44	41	40
4	54	47	42	38	52	46	41	37	44	40	37	43	39	36	42	38	36	35
5	49	41	36	32	48	41	36	32	39	35	32	38	34	31	37	34	31	30
6	45	37	32	28	44	37	32	28	36	31	28	35	30	27	34	30	27	26
7	42	34	28	24	41	33	28	24	32	27	24	31	27	24	30	27	24	23
8	39	30	25	21	38	30	25	21	29	24	21	28	24	21	27	24	21	20
9	36	27	22	18	35	27	22	18	26	21	18	25	21	18	25	21	18	17
10	33	25	20	16	32	24	20	16	24	19	16	23	19	16	23	19	16	15

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