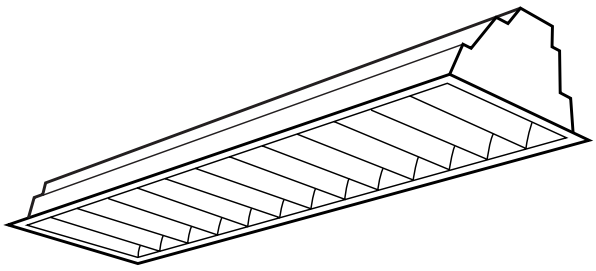
Very High Comfort

VHC94-1 Asymmetric

9″ x 48″ Parabolic

1 Lamp, 13 Cells



Also available with 2 Lamps (T8 only)

Type: _____

Job Description: _____

Features

- Meets IES standard RP-1 glare control recommendations.
- High performance, low glare luminaire meets the full range of lighting requirements for today's electronic office.
- Very low fixture brightness makes this luminaire ideal for areas that contain VDT's.
- Wide batwing distribution provides uniform light levels even when tall sound partitions are used.
- Asymmetric distribution reflector provides wall washing on one side of the luminaire and high shielding on the other – all with the same standard housing.

Construction

Luminaire housing and endcaps are die formed code gauge cold rolled steel. Louver and upper reflector surfaces are formed from low brightness iridescent suppressive specular anodized aluminum. Aluminum louver is secured in open or closed position by four torsion spring latches.

Finish

Painted parts are treated with a five stage phosphate bonding process and finished with a high temperature baked white enamel after fabrication. Inner endcaps are prepainted black. Louver is standard low iridescent specular natural anodized aluminum (LS) for use with tri-phosphor lamps. Baffles are left open at the top and are finished black inside to ensure no image of the baffle top is reflected into the upper reflector. This prevents flashing on the louver.

Air Handling

Standard VHC is supplied static with an air extract function available as a specified option. See air removal data on reverse side of this sheet.

Installation

For fast wiring connections without the necessity of opening fixture or wireway, a flex connector adapter plate is furnished with each luminaire. A plastic dust cover which eliminates construction dust and protects the lamps is provided as standard.

Labels & Electrical

All luminaires are listed with UL and bear UL recessed fixture labels. Approved for CSA. Completely wired with standard class "P", thermally protected, resetting, HPF, CBM, LE ballast. Sound rated A. All ballast leads extend a minimum of 6″ through the access opening.

Ceiling Compatibility

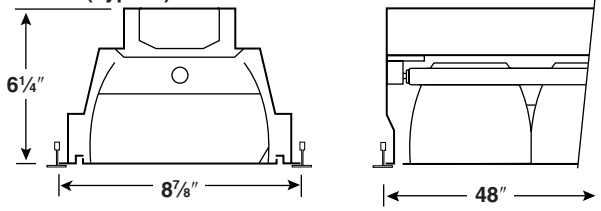
Standard fixture trim is type "GF" unless otherwise specified. Type "GF" trim facilitates fixture mounting in 2′ x 4′ T-bar systems by eliminating the need for intermediate tees adjacent to the fixture. Luminaire is available to fit most standard ceiling systems as shown at the left. For information on compatibility with specific ceilings contact your Columbia representative. Luminaires for concealed suspension ceiling are furnished with necessary T-bar clips and/or wing hangers.

Surface or Pendant Mount

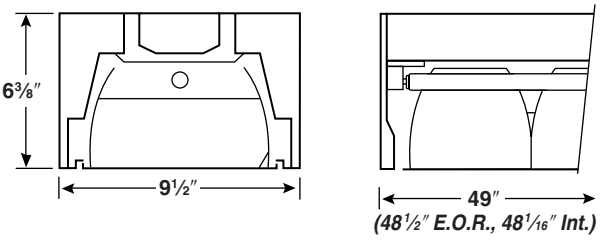
Luminaires are available in surface or pendant mount to match appearance and performance of standard recessed units.

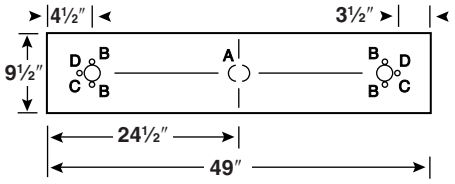
Patent 4,751,626

Recessed (Type G)



Surface

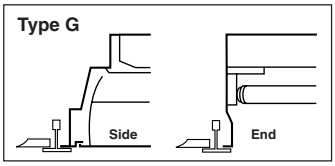




K.O. Dimensions
A - 2″ Dia. K.O.
B - 7⁄32″ Dia. K.O.
C - ⅞″ Dia. K.O.
D - 5⁄8″ Dia. K.O.

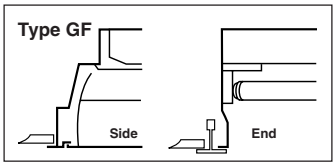
Ceiling Compatibility

Type G



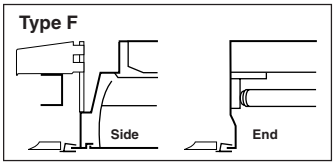
For lay-in installation in exposed grid ceilings. Maximum tee widths of 1″ and maximum tee heights of 1½″ allowed.

Type GF



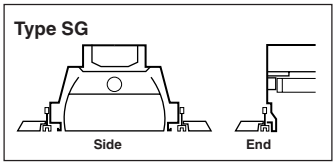
For lay-in installation in grid ceilings. Fixture mounts on exposed tees at ends of fixture. Self flange attached to side supports tile, eliminating need for intermediary tees. Designed for end tees of 1″ width.

Type F



For tile, plaster or plasterboard type ceilings. Overlapping extruded aluminum trim conceals edges of ceiling opening. Wing hanger suspension system included. For row mounting, row information is required.

Type SG



For 9⁄16″ slot grid type ceilings. Louver will be level with the ceiling plane. Slot grid tees must be field installed all around the fixture. For availability of side flanges, contact the factory.

Flanged cut out dimension for single unit only: 9⅞″ x 48⅛″

Complete ordering information on back. Dimensions and specifications subject to change without notice.

P2.2

Photometric Report No. 9643

Columbia LIGHTING

Tel 509 924 7000
PO Box 2787 (99220) 3808 North Sullivan Road Spokane WA 99216

Environmental Laboratories

REPORT # 9643
DATE: 10/ 5/90

PHOTOMETRIC REPORT PREPARED FOR: COLUMBIA LIGHTING

LUMINAIRE: VHC94-1326-LS113-OCT-1WW

9" X 48: 1-LIGHT WITH 13 CELL SPECULAR LOUVER
BAL.: R1P32; LAMP: FO32/31K; B.F.: 95; WATTS: 38
LAMPS RATED AT 2900 LUMENS EACH
LUMINOUS AREA: 46.15 X 6.38

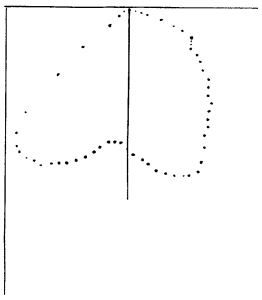
REFLECTANCE: BWE .92

MOUNTING: RECESSED

SHIELDING: PARL 32 NORM 32

BEAM SIDE CANDLEPOWER

DEG	PARL	22.5	45	67.5	NORM	FLUX
0	780.	780.	780.	780.	780.	
5	781.	785.	799.	809.	810.	77.
10	771.	791.	841.	871.	876.	
15	749.	797.	876.	914.	922.	242.
20	718.	795.	888.	941.	948.	
25	678.	782.	881.	923.	904.	385.
30	629.	751.	842.	835.	786.	
35	574.	703.	763.	752.	717.	447.
40	507.	639.	651.	695.	651.	
45	433.	551.	562.	612.	579.	429.
50	343.	450.	465.	531.	503.	
55	144.	286.	353.	419.	420.	296.
60	8.	34.	223.	307.	371.	
65	4.	6.	92.	256.	339.	135.
70	2.	3.	73.	180.	238.	
75	1.	2.	19.	77.	108.	46.
80	1.	1.	3.	12.	19.	
85	0.	0.	1.	2.	2.	2.
90	0.	0.	0.	0.	0.	



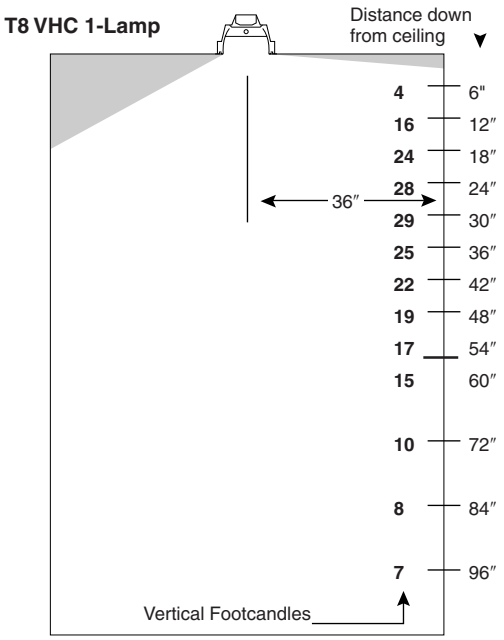
ZONAL SUMMARY

ZONE	LUMENS	LAMP	FIXT
0- 30	701.	24.2	36.0
0- 40	1188.	40.9	61.0
0- 60	1850.	63.8	95.0
0- 90	1947.	67.1	100.0
90-180	0.	0.0	0.0
0-180	1947.	67.1	100.0

This photometric test was performed using a specific ballast / lamp combination. Extrapolation of these data for other ballast / lamp combinations may produce erroneous results. The ballast factor must be applied to the lumen output rating assigned to the lamp(s) or to the candlepower values shown.

TESTED BY: APPROVED BY:
TEST RUN IN ACCORDANCE TO CURRENT I.E.S. PUBLISHED PROCEDURES

Wall Illuminance



Footcandle levels shown are initial for a single fixture. For data on specific room sizes, mounting distances and floor reflectance contact your Columbia representative. Recommended mounting distance from the wall is 36″. A uniform wash will be provided if the mounting distance from the wall is between 12″ and 48″.

Energy Data

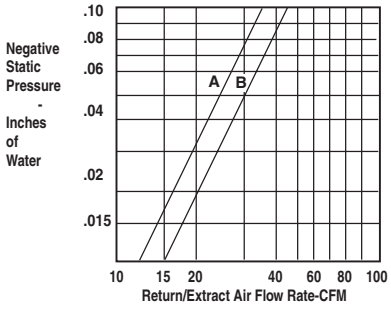
LER: FP-49 **Energy Cost: $4.90***
Input Watts: 38 **BF: .95**

The above energy calculations were conducted using a specific lamp/ballast combination. Actual results may vary depending upon the lamp and ballast used. Lamp and ballast specifications are subject to change without notice.

*Comparative annual lighting energy cost per 1000 lumens based on 3000 hours and $0.08 per KWH.

Extract Air Data

Report AL-546-1.1



A - Continuous Row **B** - Single Fixture

Ordering Information

VHC 94 - 1 - LS 1 13 - - - - -

Model
VHC - Standard VHC

Fixture Size
94 - 9″ x 4′

No. of Lamps
1 - 1 Lamp

Lamp Type
32 - 4′, T8, 32 Watt
40 - 4′, T12, 40 Watt

Ceiling Type
GF - Grid Ends, Flange Sides
F - Overlap Flange
G - Lay-In
SM - Surface Mount (Static only)
SG - Slot Grid

Louver Finish
LS - Specular Low Iridescence

No. Cells Crosswise
1 - One

No. Cells Lengthwise
13 - Thirteen

Air Functions
S - Static
H - Heat Extract Only (No dampers)

Ballast
LE - Energy Saving Magnetic T12
EB8 - Electronic T8
EB8LH - Electronic T8 <10% THD
For a specific vendor, show as option.

Voltage
120 - 120V
277 - 277V
347 - 347V
UNV - 120V/277V (T8 w/LH only)

Distribution Options
Blank - Symmetric
1WW - Asymmetric Wall Wash
2WW - Double Wall Wash

Options
GMF - Slow Blow Fuse
GLR - Fast Blow Fuse
CSA - Approved for Canadian Standards Association
EL - Emergency Battery Pack

CO 06/02

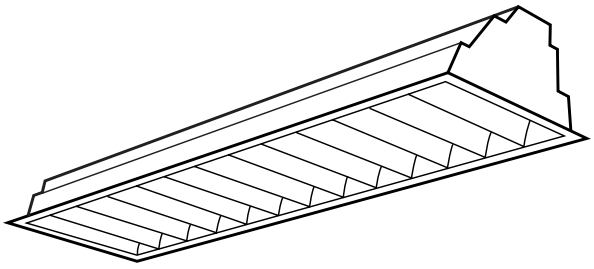
Columbia LIGHTING
3808 N Sullivan Rd, Bldg 29 • Spokane, WA 99216 • (509) 924-7000 • www.columbialighting.com
HUBBELL® Hubbell Lighting, Inc.

Very High Comfort

VHC94-2 Asymmetric

9″ x 48″ Parabolic

2 T-8 Lamps, 13 Cells



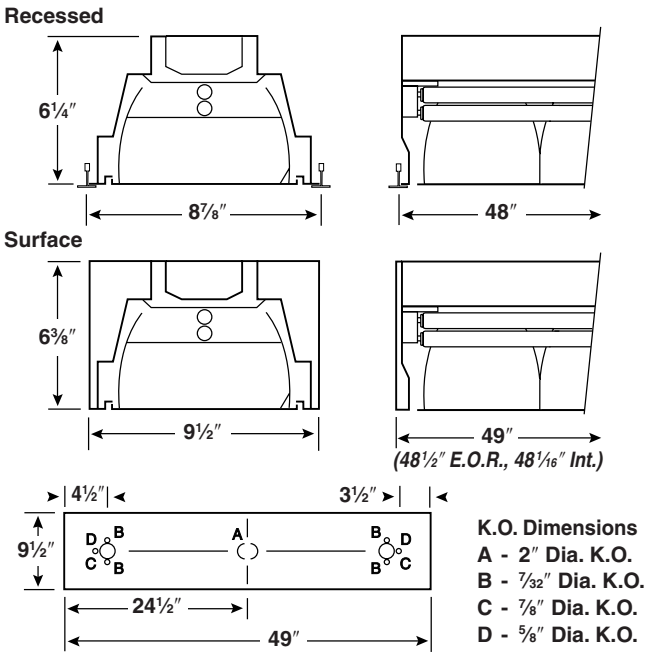
Also available with a symmetric distribution

Type: _____

Job Description: _____

Features

- Meets IES standard RP-1 glare control recommendations.
- High performance, low glare luminaire meets the full range of lighting requirements for today's electronic office.
- Very low fixture brightness makes this luminaire ideal for areas that contain VDT's.
- Wide batwing distribution provides uniform light levels even when tall sound partitions are used.
- Asymmetric distribution reflector provides wall washing on one side of the luminaire and high shielding on the other – all with the same standard housing.
- Lamps are positioned in an over/under position to allow for bi-level switching.



Construction

Luminaire housing and endcaps are die formed code gauge cold rolled steel. Louver and upper reflector surfaces are formed from low brightness iridescent suppressive specular anodized aluminum. Aluminum louver is secured in open or closed position by four torsion spring latches.

Finish

Painted parts are treated with a five stage phosphate bonding process and finished with a high temperature baked white enamel after fabrication. Inner endcaps are prepainted black. Louver is standard low iridescent specular natural anodized aluminum (LS) for use with tri-phosphor lamps. Baffles are left open at the top and are finished black inside to ensure no image of the baffle top is reflected into the upper reflector. This prevents flashing on the louver.

Air Handling

Standard VHC is supplied static with an air extract function available as a specified option. See air removal data on reverse side of this sheet.

Installation

For fast wiring connections without the necessity of opening fixture or wireway, a flex connector adapter plate is furnished with each luminaire. A plastic dust cover which eliminates construction dust and protects the lamps is provided as standard.

Labels & Electrical

All luminaires are listed with UL and bear UL recessed fixture labels. Approved for CSA. Completely wired with standard class "P", thermally protected, resetting, HPF, CBM, LE ballast. Sound rated A. All ballast leads extend a minimum of 6″ through the access opening.

Ceiling Compatibility

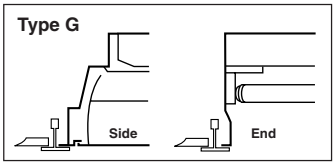
Standard fixture trim is type "GF" unless otherwise specified. Type "GF" trim facilitates fixture mounting in 2′ x 4′ T-bar systems by eliminating the need for intermediate tees adjacent to the fixture. Luminaire is available to fit most standard ceiling systems as shown at the left. For information on compatibility with specific ceilings contact your Columbia representative. Luminaires for concealed suspension ceiling are furnished with necessary T-bar clips and/or wing hangers.

Surface or Pendant Mount

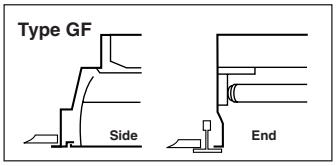
Luminaires are available in surface or pendant mount to match appearance and performance of standard recessed units.

Patent 4,751,626

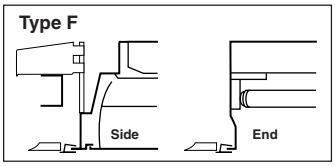
Ceiling Compatibility



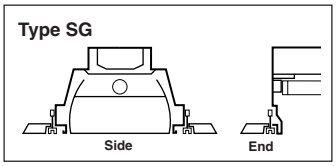
For lay-in installation in exposed grid ceilings. Maximum tee widths of 1″ and maximum tee heights of 1½″ allowed.



For lay-in installation in grid ceilings. Fixture mounts on exposed tees at ends of fixture. Self flange attached to side supports tile, eliminating need for intermediary tees. Designed for end tees of 1″ width.



For tile, plaster or plasterboard type ceilings. Overlapping extruded aluminum trim conceals edges of ceiling opening. Wing hanger suspension system included. For row mounting, row information is required.



For 9/16″ slot grid type ceilings. Louver will be level with the ceiling plane. Slot grid tees must be field installed all around the fixture. For availability of side flanges, contact the factory.

Flanged cut out dimension for single unit only: 9⅞″ x 48⅛″

Complete ordering information on back. Dimensions and specifications subject to change without notice.

P2.4

Photometric Report No. 9892

Columbia LIGHTING

Tel 509 924 7000
PO Box 2767 (99220) 3808 North Sullivan Road Spokane WA 99216

Environmental Laboratories

REPORT # 9892
DATE: 7/17/91

PHOTOMETRIC REPORT PREPARED FOR: COLUMBIA LIGHTING

LUMINAIRE: VHC94-232G-LS113-S-OCT-1WW

9" X 48" 2-LAMP WITH 1 X 13 CELL SPECULAR LOUVER
BAL.: R2P32; LAMP: F032/41K; B.F.: .95; WATTS: 71
LAMPS RATED AT 2850 LUMENS EACH
LUMINOUS AREA: 46.4 X 6.4

REFLECTANCE: NA

MOUNTING: RECESSED

S/MH: PARL 1.20 NORM 1.36

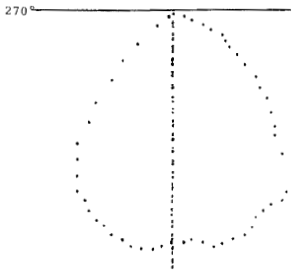
SHIELDING: PARL 32 NORM 32

PLOT OF NORMAL PLANE

BEAM SIDE

CANDLEPOWER

DEG	PARL	22.5	45	67.5	NORM
0	1727.	1727.	1727.	1727.	1727.
5	1722.	1722.	1739.	1734.	1726.
10	1696.	1707.	1735.	1778.	1779.
15	1647.	1664.	1759.	1779.	1764.
20	1574.	1615.	1709.	1733.	1722.
25	1485.	1569.	1638.	1647.	1655.
30	1376.	1474.	1521.	1594.	1630.
35	1256.	1346.	1414.	1540.	1529.
40	1119.	1192.	1303.	1262.	1216.
45	952.	1020.	1085.	1088.	1059.
50	743.	825.	801.	881.	872.
55	319.	552.	584.	681.	670.
60	16.	77.	366.	473.	503.
65	8.	12.	149.	309.	375.
70	5.	7.	75.	183.	242.
75	3.	4.	13.	54.	76.
80	2.	4.	5.	8.	8.
85	1.	2.	2.	1.	2.
90	0.	0.	0.	0.	0.



ZONAL SUMMARY

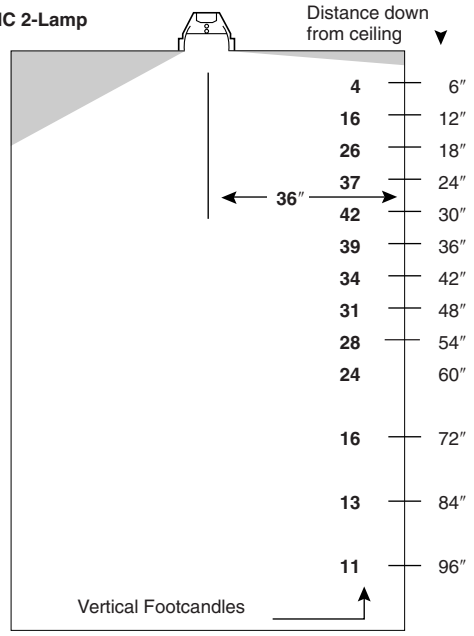
ZONE	LUMENS	LAMP	FIXT
0- 30	1369.	24.0	40.8
0- 40	2196.	38.5	65.5
0- 60	3233.	56.7	96.4
0- 90	3352.	58.8	100.0
90-180	0.	0.0	0.0
0-180	3352.	58.8	100.0

This photometric test was performed using a specific ballast / lamp combination. Extrapolation of these data for other ballast / lamp combinations may produce erroneous results. The ballast factor must be applied to the lumen output rating assigned to the lamp(s) or to the candlepower values shown.

TESTED BY: _____ APPROVED BY: _____

TEST RUN IN ACCORDANCE TO CURRENT I.E.S. PUBLISHED PROCEDURES

Wall Illuminance



Footcandles levels shown are initial for a single fixture. For data on specific room sizes, mounting distances and floor reflectance contact your Columbia representative. Recommended mounting distance from the wall is 36″. A uniform wash will be provided if the mounting distance from the wall is between 12″ and 48″.

Energy Data

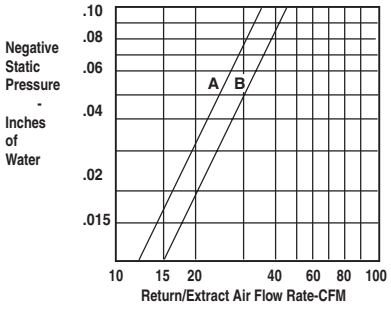
LER: FP-45 **Energy Cost: $5.33***
Input Watts: 71 **BF: .95**

The above energy calculations were conducted using a specific lamp/ballast combination. Actual results may vary depending upon the lamp and ballast used. Lamp and ballast specifications are subject to change without notice.

*Comparative annual lighting energy cost per 1000 lumens based on 3000 hours and $0.08 per KWH.

Extract Air Data

Report AL-546-1.1



A - Continuous Row **B** - Single Fixture

Ordering Information

VHC 94 - 2 _ _ - LS 1 13 - - _ _ - _ - _

Model
VHC - Standard VHC

Fixture Size
94 - 9″ x 4′

No. of Lamps
2 - 2 Lamps

Lamp Type
32 - 4′, T8, 32 Watt

Ceiling Type
GF - Grid Ends, Flange Sides
F - Overlap Flange
G - Lay-In
SM - Surface Mount (Static only)
SG - Slot Grid

Louver Finish
LS - Specular Low Iridescence

No. Cells Crosswise
1 - One

No. Cells Lengthwise
13 - Thirteen

Air Functions
S - Static
H - Heat Extract Only (No dampers)

Ballast
EB8 - Electronic T8
EB8LH - Electronic T8 <10% THD
For a specific vendor, show as option.

Voltage
120 - 120V
277 - 277V
347 - 347V
UNV - 120V/277V (T8 w/LH only)

Distribution Options
Blank - Symmetric
1WW - Asymmetric Wall Wash
2WW - Double Wall Wash

Options
GMF - Slow Blow Fuse
GLR - Fast Blow Fuse
CSA - Approved for Canadian Standards Association
EL - Emergency Battery Pack

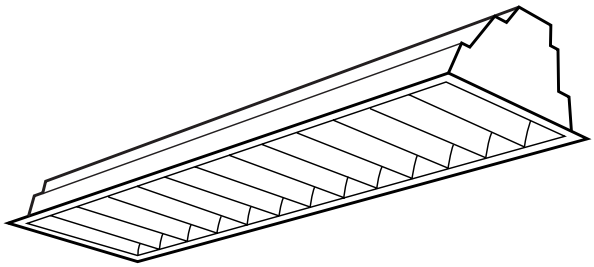
Columbia LIGHTING
3808 N Sullivan Rd, Bldg 29 • Spokane, WA 99216 • (509) 924-7000 • www.columbialighting.com
HUBBELL® Hubbell Lighting, Inc.

Very High Comfort

VHC94-2 Symmetric

9″ x 48″ Parabolic

2 T-8 Lamps, 13 Cells



Also available with an asymmetric distribution

Type: _____

Job Description: _____

Features

- Meets IES standard RP-1 glare control recommendations.
- High performance, low glare luminaire meets the full range of lighting requirements for today's electronic office.
- Very low fixture brightness makes this luminaire ideal for areas that contain VDT's.
- Wide batwing distribution provides uniform light levels even when tall sound partitions are used.
- Unique optical system eliminates all objectionable glare on the computer screen.
- Optional asymmetric reflector provides wall washing with the same housing.
- Lamps are positioned in an over/under position to allow for bi-level switching without sacrificing cell uniformity.

Construction

Luminaire housing and endcaps are die formed code gauge cold rolled steel. Louver and upper reflector surfaces are formed from low brightness iridescent suppressive specular anodized aluminum. Aluminum louver is secured in open or closed position by by four torsion spring latches.

Finish

Painted parts are treated with a five stage phosphate bonding process and finished with a high temperature baked white enamel after fabrication. Inner endcaps are prepainted black. Louver is standard low iridescent specular natural anodized aluminum (LS) for use with tri-phosphor lamps. Baffles are left open at the top and are finished black inside to ensure no image of the baffle top is reflected into the upper reflector. This prevents flashing on the louver.

Air Handling

Standard VHC is supplied static with an air extract function available as a specified option. See air removal data on reverse side of this sheet.

Installation

For fast wiring connections without the necessity of opening fixture or wireway, a flex connector adapter plate is furnished with each luminaire. A plastic dust cover which eliminates construction dust and protects the lamps is provided as standard.

Labels & Electrical

All luminaires are listed with UL and bear UL recessed fixture labels. Approved for CSA. Completely wired with standard class "P", thermally protected, resetting, HPF, CBM, LE ballast. Sound rated A. All ballast leads extend a minimum of 6″ through the access opening.

Ceiling Compatibility

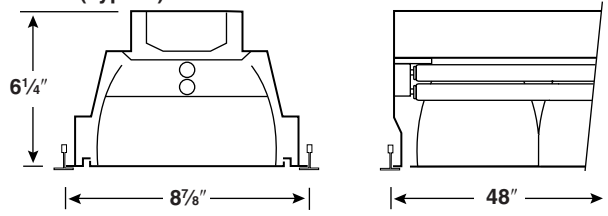
Standard fixture trim is type "GF" unless otherwise specified. Type "GF" trim facilitates fixture mounting in 2′ x 4′ T-bar systems by eliminating the need for intermediate tees adjacent to the fixture. Luminaire is available to fit most standard ceiling systems as shown at the left. For information on compatibility with specific ceilings contact your Columbia representative. Luminaires for concealed suspension ceiling are furnished with necessary T-bar clips and/or wing hangers.

Surface or Pendant Mount

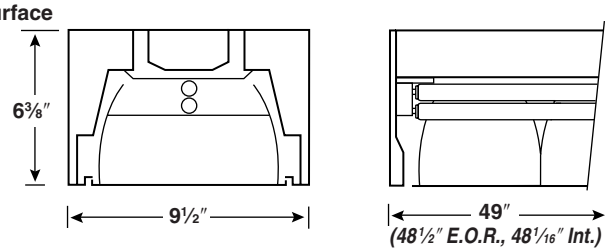
Luminaires are available in surface or pendant mount to match appearance and performance of standard recessed units.

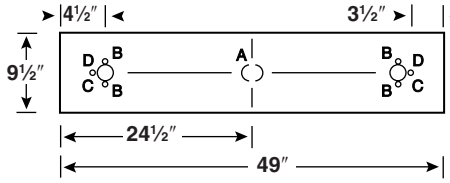
Patent 4,751,626

Recessed (Type G)



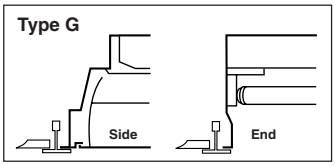
Surface



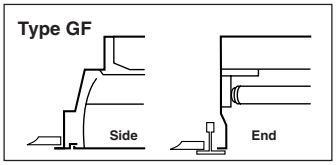


K.O. Dimensions
A - 2″ Dia. K.O.
B - 7⁄32″ Dia. K.O.
C - ⅞″ Dia. K.O.
D - ⅝″ Dia. K.O.

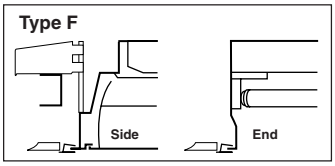
Ceiling Compatibility



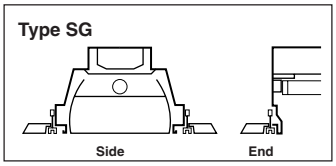
For lay-in installation in exposed grid ceilings. Maximum tee widths of 1″ and maximum tee heights of 1½″ allowed.



For lay-in installation in grid ceilings. Fixture mounts on exposed tees at ends of fixture. Self flange attached to side supports tile, eliminating need for intermediary tees. Designed for end tees of 1″ width.



For tile, plaster or plasterboard type ceilings. Overlapping extruded aluminum trim conceals edges of ceiling opening. Wing hanger suspension system included. For row mounting, row information is required.



For 9⁄16″ slot grid type ceilings. Louver will be level with the ceiling plane. Slot grid tees must be field installed all around the fixture. For availability of side flanges, contact the factory.

Flanged cut out dimension for single unit only: 9⅞″ x 48⅛″

Complete ordering information on back. Dimensions and specifications subject to change without notice.

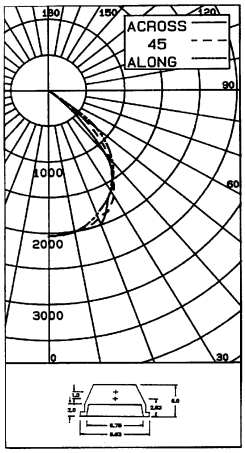
Photometric Report No. LSI-9977

LSI Laboratories
Independent Testing Since 1979

LSI Laboratories Inc.
7830 E. Evans Road
Scottsdale, Arizona 85260 USA
Tel: 602-948-5782 • Fax: 602-991-0375

CERTIFIED TEST REPORT NO. LSI9977

COLUMBIA 9" X 48" FLUORESCENT LUMINAIRE CATALOG NUMBER VHC94-232-GF-LS113-OCT
WHITE PAINTED INTERIOR, 13 CELL SPECULAR LOUVER
TWO FO32/41K FLUORESCENT LAMPS. LUMEN RATING = 2900 LMS.
ONE ADVANCE R-2P32-TP FLUORESCENT LAMP BALLAST



CANDLEPOWER SUMMARY

ANGLE	ALONG	22.5	45	67.5	ACROSS	OUTPUT LUMENS
0	2043	2043	2043	2043	2043	
5	2031	2027	2041	2022	2020	194
10	2017	1995	2012	2022	2010	
15	1949	1957	1979	2006	2007	559
20	1857	1864	1913	1972	1995	
25	1747	1779	1859	1871	1808	836
30	1626	1658	1710	1659	1632	
35	1479	1500	1465	1499	1445	924
40	1301	1322	1230	1233	1155	
45	1094	1096	940	834	630	717
50	836	784	595	406	277	
55	290	385	225	162	82	245
60	18	27	52	21	0	
65	2	16	0	9	0	11
70	2	4	0	5	0	
75	1	0	0	0	0	1
80	0	0	0	0	0	
85	0	0	0	0	0	0
90	0	0	0	0	0	

ZONAL LUMENS AND PERCENTAGES

ZONE	LUMENS	% LAMP	%LUMINAIRE
0-30	1588	27.39	45.58
0-40	2512	43.32	72.07
0-60	3474	59.90	99.67
0-90	3485	60.10	100.00
40-90	973	16.78	27.93
60-90	11	.20	.33
90-180	0	.00	.00
0-180	3485	60.10	100.00

** EFFICIENCY = 60.1% **

PAINT REFLECTANCE = .90 S/MH = 1.2
SC = 1.2

LUMINANCE SUMMARY - CD./SQ.M.

ANGLE	ALONG	45	ACROSS
45	7518	6486	4346
55	2454	1913	699
65	27	0	0
75	11	0	0
85	0	0	0

CERTIFIED BY: James E. Walker III
DATE: MAY 8, 1996
PREPARED FOR: COLUMBIA LIGHTING
SPOKANE, WA

TESTED ACCORDING TO IES PROCEDURES. TEST DISTANCE EXCEEDS FIVE TIMES THE GREATEST LUMINOUS OPENING OF LUMINAIRE.

Coefficients of Utilization

Coefficients of Utilization

Zonal Cavity Method — Floor Reflectance - .20

RC	80				70				50			0
RW	70	50	30	10	70	50	30	10	50	30	10	0
1	68	66	64	63	66	65	63	62	62	61	60	55
2	64	61	58	56	63	60	57	55	58	56	54	51
3	60	56	52	50	59	55	52	49	53	51	49	46
4	56	51	47	45	55	51	47	44	49	46	44	42
5	53	47	43	40	52	46	42	40	45	42	39	38
6	49	43	39	36	48	43	39	36	42	38	36	34
7	46	39	35	32	45	39	35	32	38	35	32	31
8	43	36	32	29	42	35	31	29	35	31	28	27
9	39	33	28	25	39	32	28	25	31	28	25	24
10	37	30	25	23	36	29	25	23	29	25	23	21

Visual Comfort Probability

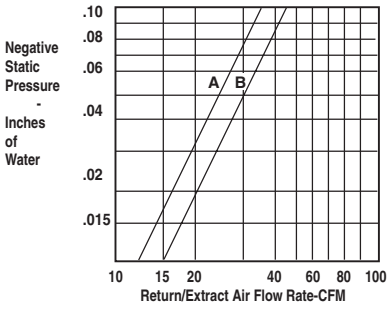
VCP

Reflectance - 80, 50, 20
Work Plane Illumination - 100 FC@ 2.5 ft.

Room Dimensions W	L	Luminaires Lengthwise Ht.	8.5	10.0	13.0	16.0	Luminaires Crosswise Ht.	8.5	10.0	13.0	16.0
20	20		85	83	80	67		96	91	90	79
20	40		85	83	83	74		97	92	91	82
30	30		85	83	85	78		95	92	92	82
30	60		86	84	84	78		95	92	92	83
40	40		86	84	84	80		95	92	92	85
40	60		86	84	84	80		95	92	92	85
60	30		86	84	85	80		95	92	92	85
60	40		86	84	85	80		95	92	92	85
60	60		86	84	86	81		96	92	92	85

Extract Air Data

Report AL-563-1.1



A - Continuous Row **B** - Single Fixture

Energy Data

LER: FP-48 **Energy Cost: $5.00***
Input Watts: 69 **BF: .95**

The above energy calculations were conducted using a specific lamp/ballast combination. Actual results may vary depending upon the lamp and ballast used. Lamp and ballast specifications are subject to change without notice.

*Comparative annual lighting energy cost per 1000 lumens based on 3000 hours and $0.08 per KWH.

Ordering Information

VHC 94 - 1 - LS 1 13 - - - - -

Model
VHC - Standard VHC

Fixture Size
94 - 9″ x 4′

No. of Lamps
2 - 2 Lamp

Lamp Type
32 - 4′, T8, 32 Watt

Ceiling Type
GF - Grid Ends, Flange Sides
F - Overlap Flange
G - Lay-In
SM - Surface Mount (Static only)
SG - Slot Grid

Louver Finish
LS - Specular Low Iridescence

No. Cells Crosswise
1 - One

No. Cells Lengthwise
13 - Thirteen

Air Functions
S - Static
H - Heat Extract Only (No dampers)

Ballast
OCT - Magnetic T8 (Octron)
EB8 - Electronic T8
EB8LH - Electronic T8 <10% THD
For a specific vendor, show as option.

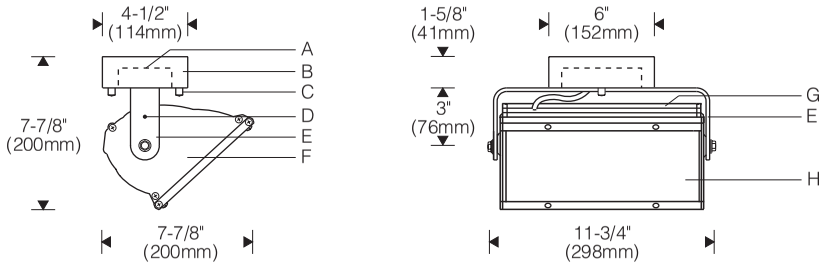
Voltage
120 - 120V
277 - 277V
347 - 347V
UNV - 120V/277V (T8 w/LH only)

Distribution Options
Blank - Symmetric
1WW - Asymmetric Wall Wash
2WW - Double Wall Wash

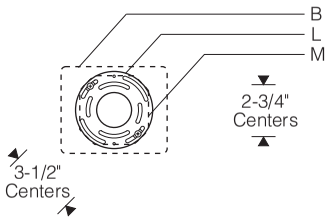
Options
GMF - Slow Blow Fuse
GLR - Fast Blow Fuse
CSA - Approved for Canadian Standards Association
EL - Emergency Battery Pack

Columbia LIGHTING
3808 N Sullivan Rd, Bldg 29 • Spokane, WA 99216 • (509) 924-7000 • www.columbialighting.com
HUBBELL® Hubbell Lighting, Inc.

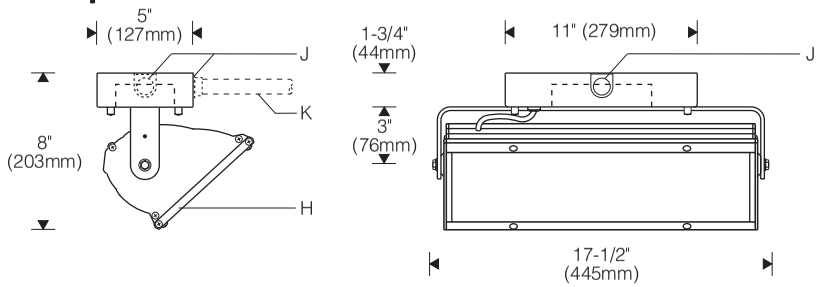
1-Lamp - E Mount 1:10 Scale



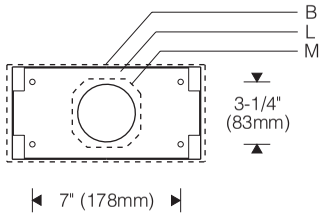
Mounting Plate (1-lamp)



2-Lamp - F Mount 1:10 Scale



Mounting Plate (2-lamp)



Specifications

- **A** Integral electronic ballast (**remote** for **X** mount)
- **B** Aluminum canopy/ ballast housing
- **C** Chrome cap nuts
- **D** Locking set screw
- **E** Aluminum yoke
- **F** Contoured aluminum end plates
- **G** Specular extruded aluminum reflector
- **H** Overlapping aluminum door frame with micro-prismatic tempered glass lens
- **J** 7/8" dia. conduit entries, 3 total (**F** mount only)
- **K** Conduit (by others)
- **L** Mounting plate
- **M** Recessed outlet box (by others)

Finish:
Bright clear anodized aluminum housing with semi-gloss black door frame, end plates, yoke and canopy or all parts semi-gloss white

Painted surfaces - 6 stage pretreatment and electrostatically applied thermoset powder coat for stable, long lasting and corrosion resistant finish.

Reflector and internal end plates - extruded high purity aluminum with clear anodized specular finish. All luminaire hardware - stainless steel. All mounting hardware - zinc or cadmium plated.

Mounting:
E mount - canopy mounts over recessed outlet box.

F mount - three 7/8" dia. entries in mounting plate with clearance openings in canopy; one front center, one on each end (surface conduit, connectors by others). **2-lamp only.**

Pendant or cantilever assembly ordered separately; specify **X** mount. Supplied with **remote** ballast.

Electrical:
Use 90°C wire for supply connections.

Integral electronic HPF thermally protected class P ballast with end-of-life protection.

X mount (for use with pendant or cantilever) furnished with **remote** electronic ballast. Aluminum ballast enclosure includes four 7/8" diameter entries and a knockout for an accessory fuse. **Maximum wire length between remote electronic ballast and fixture is 10' (3m) less length of pendant stem or cantilever arm.**

Optional electronic dimming ballast dims to 5% of full light output (**E** and **F** mount only). Not available for **X** mount (pendant or cantilever). Compatible dimmer switch required (by others). Consult sales representative for specifications.

For complete ballast specifications, see Accessories Section.

Standard:
UL listed or CSA certified for damp locations.
(Style 114 painted model with gasketed lens recommended for damp location use; see page W-29.0.)

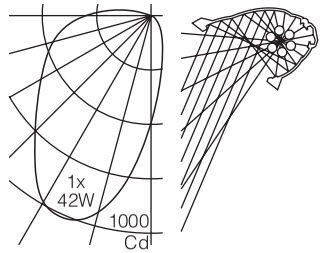
Features

- **KO Series** - *unequaled wall lighting for cost and energy conscious commercial interiors; 8' to 12' high walls*
- *Overlapping door frame with lens for finished appearance*
- *Integral electronic ballast - ideal low energy, great color, long life incandescent substitute; dimming optional*
- *Non corrosive construction - aluminum and stainless steel*

W 33.0

Performance

Two parabolic reflector sections drive light to the bottom of the wall. An elliptical section shields the lamp from normal viewing angles and redirects its light to a parabola. Glare is minimized and asymmetry of the beam is maximized resulting in high beam efficiency and superior surface uniformity.



For complete photometrics, visit www.elliptipar.com.

elliptipar

To form a Catalog Number

F | 1 2 6 | [3] | [4] | [5] | [6] | [7] | [8]

1 2 3 4 5 6 7 8

Project: Type:

1 Source

F = Hex tube compact fluorescent

2 Style

126 = Large **KO Series** contoured, **integral** ballast

Note: pendant or cantilever mounted units and dimming units furnished with **remote** ballast.

3 Lamp

Lamp Code	*Wattage*	*Lamp Number*
Hex Tube Compact Fluorescent		
H132	1x32W	CFTR32W/GX24q
H232	2x32W	(2) CFTR32W/GX24q
H142	1x42W	CFTR42W/GX24q
H242	2x42W	(2) CFTR42W/GX24q

For complete lamp and ballast information, see Accessories Section. Standard hex tube lamp color is 3000K / 80+ CRI.

4 Mounting

E = External yoke on ceiling canopy. Mounting plate fastens over recessed outlet box (by others).

F = External yoke on ceiling canopy. Mounting plate with (3) 7/8" dia. entries, one on front, one on each end for surface conduit (by others). **2-lamp only.**

X = External yoke for use with accessory pendant or cantilever mounting assembly (order separately) **Note**: furnished with **remote** ballast.

5 Finish

81 = Bright aluminum housing with semi-gloss black door frame, end plates, yoke and canopy

02 = Semi-gloss white housing, door frame, end plates, yoke and canopy

99 = Custom RAL or computer matched color to be specified, consult sales representative

6 Voltage/Ballast

Electronic *	*Dimming* +
1 = 120V	**T** = 120V
2 = 277V	**V** = 277V
3 = 347V (Canada) **	

* **X** mount furnished with **remote** electronic ballast.
** Consult factory for availability.
+ Dimming not available for use with pendant or cantilever (available in **E** and **F** mount only).

7 Option (See Accessories Section for specifications)

00 = No options

0E = Remote emergency battery pack; maximum distance from battery pack to fixture is 5' (1.5m) for 1-lamp reflector and 2' (0.6m) for 2-lamp reflector. For use with non-dimming ballasts only.

XX = For modification not listed, include detailed description. Consult factory prior to specification.

8 Standard

0 = UL, Underwriters Laboratories

J = CSA, Canadian Standards Association

Example

F126 - H242 - F - 02 - 1 - 00J

Large **KO Series** contoured model for use with two 42W hex tube compact fluorescent lamps. External yoke on canopy with mounting plate for surface conduit (by others). Semi-gloss white housing, door frame, end plates, yoke and canopy. Integral 120V electronic ballast. CSA.

Accessories

Order separately. See Accessories Section for specifications.

VCL [ ] **36** [ ] = **Cantilever**, 36" (915mm) setback (**X** mount remote units only)

0 = UL
J = CSA

02 = semi-gloss white
08 = semi-gloss black

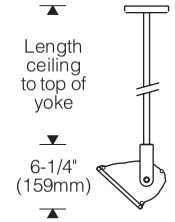
VP [ ] [ ] [ ] [ ] = Wallwash **pendant** (**X** mount remote units only)

0 = UL
J = CSA

Length in inches (60" (1.5m) max.)

02 = semi-gloss white
08 = semi-gloss black

L = straight
E = swivel (up to 45°)



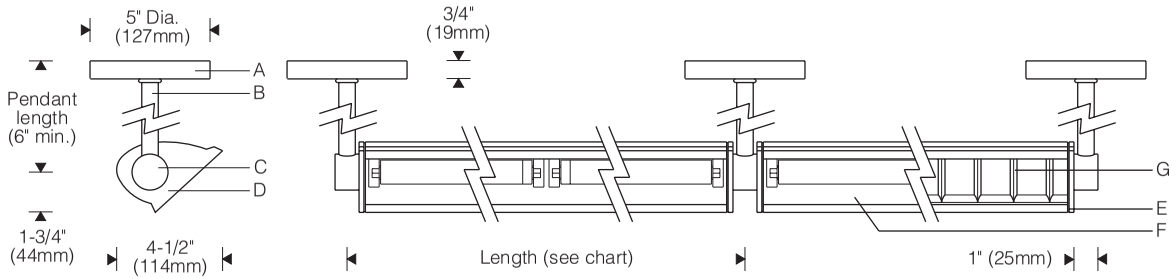
AFK000X [ ] = Ballast **fuse** kit

0 = UL
J = CSA

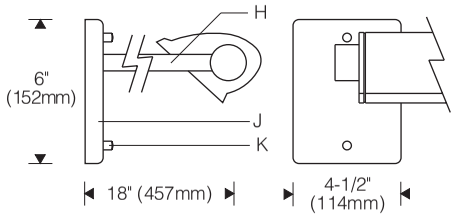
W 33.1

elliptipar
114 Boston Post Road, West Haven, Connecticut 06516, USA
Voice 203.931.4455 • Fax 203.931.4464 • **www.elliptipar.com**

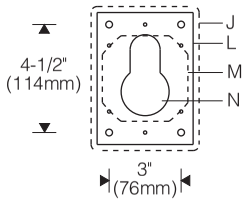
Pendant Mount 1:8 Scale



Cantilever Mount 1:8 scale



Mounting Plate



Nominal Lamp Length	*Length (center to center of hangers)*	
	T8	*T5*
1 x 2'	26-7/16" (672mm)	24-7/16" (621mm)
1 x 3'	38-7/16" (976mm)	36-1/4" (921mm)
1 x 4'	50-7/16" (1281mm)	48" (1219mm)
1 x 5'	62-5/16" (1583mm)	60" (1524mm)
2 x 3'	74-15/16" (1903mm)	72" (1829mm)
2 x 4'	98-15/16" (2513mm)	96" (2438mm)
2 x 5'	122-15/16" (3123mm)	120" (3048mm)

Specifications

A Round aluminum canopy (pendant mount)
B 11/16" O.D. aluminum pendant stem
C Machined aluminum mounting hub
D Die-cast end plates
E Aluminum reveal plates (black)
F Specular extruded aluminum reflector
G Optional snap-in specular parabolic cross baffle
H 11/16" O.D. cantilever arm
J Rectangular aluminum canopy (cantilever mount)
K Chrome cap nuts
L Cantilever mounting plate
M Outlet box (by others)
N Splice access opening

Finish:
Style 101 fluted - bright clear anodized aluminum housing. Painted end plates in choice of silver or semi-gloss black.

Style 102 smooth - semi-gloss white housing and end plates.

Painted surfaces - 6 stage pretreatment and electrostatically applied thermoset powder coat for stable, long lasting and corrosion resistant finish.

Reflector - extruded high purity aluminum with clear anodized specular finish. All luminaire hardware - stainless steel. All mounting hardware - zinc or cadmium plated.

Mounting:
Pendant or cantilever mounting hangers (ordered separately); specify end and intermediate hangers.

Pendant assembly furnished with canopy for mounting on recessed outlet box. Optional hang-straight allows mounting on slopes up to 45° (in the plane perpendicular to wall).

Cantilever wall plate mounts over recessed outlet box (suitable backing structure required). Adjustable interface plate (concealed under canopy) allows for leveling of arms. **Cantilever limited to single lamp reflectors (up to 5' long).**

Electrical:
Use 90°C wire for supply connections.

Remote electronic HPF thermally protected class P ballast. Aluminum ballast enclosure includes four 7/8" diameter entries and a knockout for an accessory fuse.

Maximum wire length between electronic ballast and fixture is 7' for two-lamp reflectors and 12' for one-lamp reflectors, less length of stem or arm. Magnetic ballast is available (T8 only) for remote distances up to 50'.

For dimming, see Styles 105/106 with integral dimming ballast.

For complete ballast specifications, see Accessories Section.

Standard:
UL listed or CSA certified for damp locations.
(Style 151 smooth painted model with gasketed lens recommended for damp location use; see Outdoor Section.)

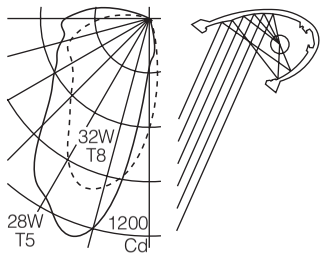
Features

- *Unequaled low energy wall lighting with T5 or T8 lamps*
- *Machined aluminum mounting hub attaches to pendant stem or cantilever arm without exposed threads*
- *Die-cast end plate joins at articulated black reveal - no exposed fasteners*
- *Optional snap-in specular parabolic cross baffle*

W 4.0

Performance

Two parabolic reflector sections drive light to the bottom of the wall. An elliptical section shields the lamp from normal viewing angles and redirects its light to a parabola. Glare is minimized and asymmetry of the beam is maximized resulting in high beam efficiency and superior surface uniformity.



For complete photometrics, visit www.elliptipar.com.

To form a Catalog Number

F [ ] - [ ] - X [ ] [ ] [ ] [ ]

1 2 3 4 5 6 7 8

1 Source

F = Linear fluorescent

2 Style

101 = Small fluted surface, **remote** ballast
102 = Small smooth surface, **remote** ballast

3 Lamp

[ ] [ ] [ ] = **Lamp Code**

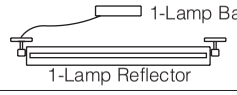
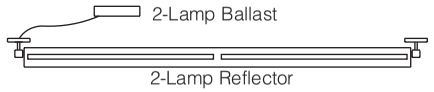
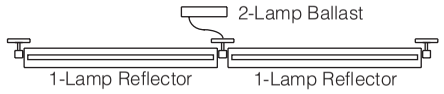
Lamp Wattage (see chart below)

Reflector Configuration, specify **1**, **2** or **3** (see chart below)

A = T8 Fluorescent
T = T5 Fluorescent

Example: **A325** = two nominal 3' reflectors, each for use with one 25W T8 lamp; one 2-lamp ballast

Reflector Configuration

1	
2	
3	

Lamp Wattage

Lamp Length (nominal)	*Lamp Wattage (Lamp Number)*		
	T8	*T5*	*T5 HO*
2'	**17** (F17T8)	**14** (F14T5)	**24** (F24T5/HO)
3'	**25** (F25T8)	**21** (F21T5)	**39** (F39T5/HO)
4'	**32** (F32T8)	**28** (F28T5)	**55** (F55T5/HO)
5'	**40** (F40T8)	**35** (F35T5)	**80** (F80T5/HO)

For complete lamp and ballast information, see Accessories Section. Standard T5 lamp color is 3000K / 80+ CRI. T8 lamps by others.

Project: [ ]

4 Mounting

X = For use with end and intermediate hangers. Available in pendant or cantilever (order separately).

Note: Cantilevers are limited to use with single lamp reflectors (Configuration **1** or **3**) up to 5' long.

5 Finish

Style 101 Fluted

01 = Bright aluminum housing with silver end plates

81 = Bright aluminum housing with semi-gloss black end plates

Style 102 Smooth

02 = Semi-gloss white reflector and end plates

99 = Custom RAL or computer matched color to be specified, consult sales representative

6 Voltage/Ballast

Electronic

1 = 120V
2 = 277V
3 = 347V (Canada)

7 Option (See Accessories Section for specifications)

00 = No options
0B = Snap-in parabolic cross baffle, specular finish, provides 35° lengthwise shielding
0E = Remote emergency battery pack
XX = For modification not listed, include detailed description. Consult factory prior to specification.

8 Standard

0 = UL, Underwriters Laboratories
J = CSA, Canadian Standards Association

Example

F102 - A132 - X - 02 - 1 - 000

Small smooth surface model for use with one 32W T8 lamp in nominal 4 foot reflector. Semi-gloss white. Remote 1-lamp 120V electronic ballast. UL. (Order pendant or cantilever mounting hangers separately.)

Type: [ ]

Mounting Hangers

For individually mounted luminaires, order two end hangers for each reflector.

For a continuous row, order two end hangers. To determine the quantity of intermediate hangers, total the number of reflectors in the row and subtract one. Example: a row of five reflectors requires 2 end hangers and 4 intermediate hangers.

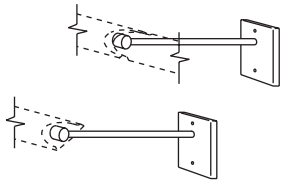
Note: In determining hanger quantities, treat Reflector Configuration **3** as *two* reflectors.

HS [ ] [ ] [ ] = **Cantilever** hanger with wall plate, 18" (457mm) setback **(Limited to single lamp reflectors up to 5' long)**

0 = UL
J = CSA

02 = semi-gloss white
07 = silver
08 = semi-gloss black

C = Intermediate
D = End



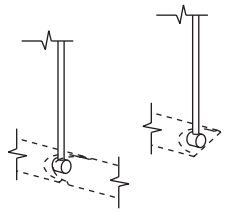
HS [ ] [ ] [ ] [ ] = **Pendant** hanger with canopy

0 = UL
J = CSA

Length in inches, up to 60" (1.5m), 6" minimum

02 = semi-gloss white
07 = silver
08 = semi-gloss black

F = Intermediate, straight
G = End, straight
J = Intermediate, swivel (up to 45°)
K = End, swivel (up to 45°)



Accessories

Order separately. See Accessories Section for specifications.

AFK000X [ ] = Ballast **fuse** kit

0 = UL
J = CSA

REV. 4/04

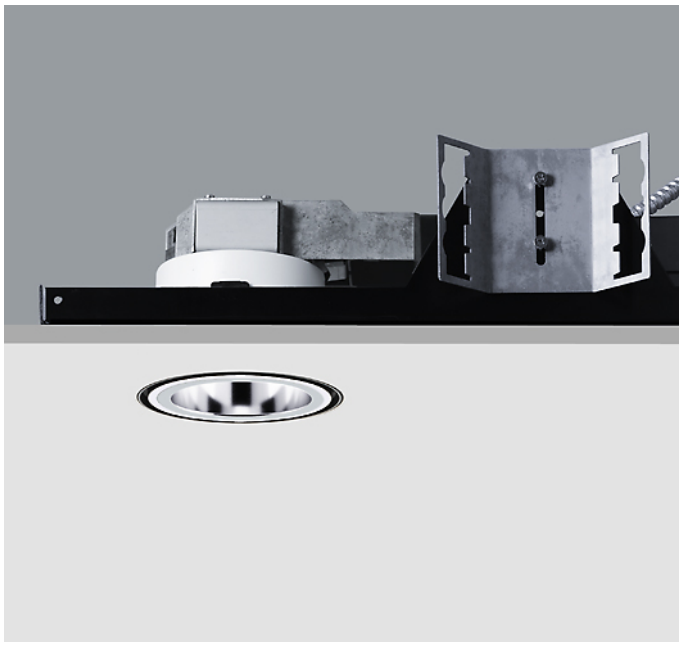
elliptipar

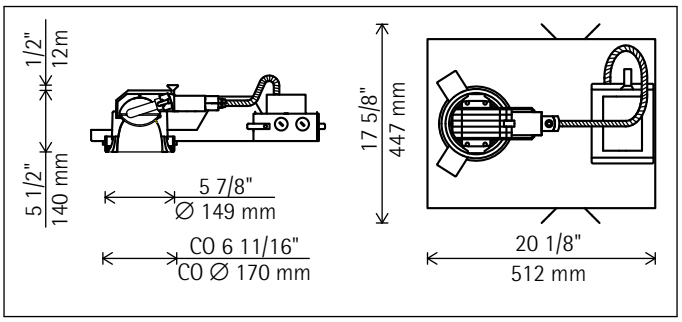
elliptipar
114 Boston Post Road, West Haven, Connecticut 06516, USA
Voice 203.931.4455 • Fax 203.931.4464 • **www.elliptipar.com**

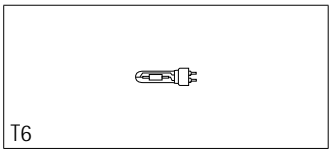
ERCO

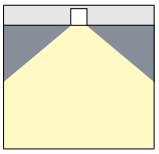
Skim Downlight

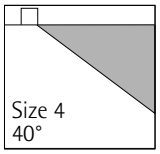
with light ring for metal halide lamps

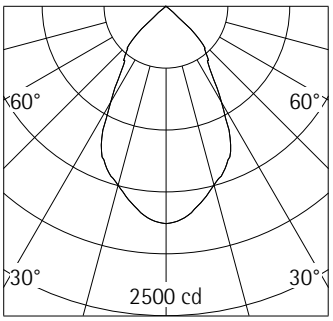












T6 39W G12 3400lm

Efficiency: 53%

23051.023
Reflector color Silver
T6 39W G12 3400lm
ECG

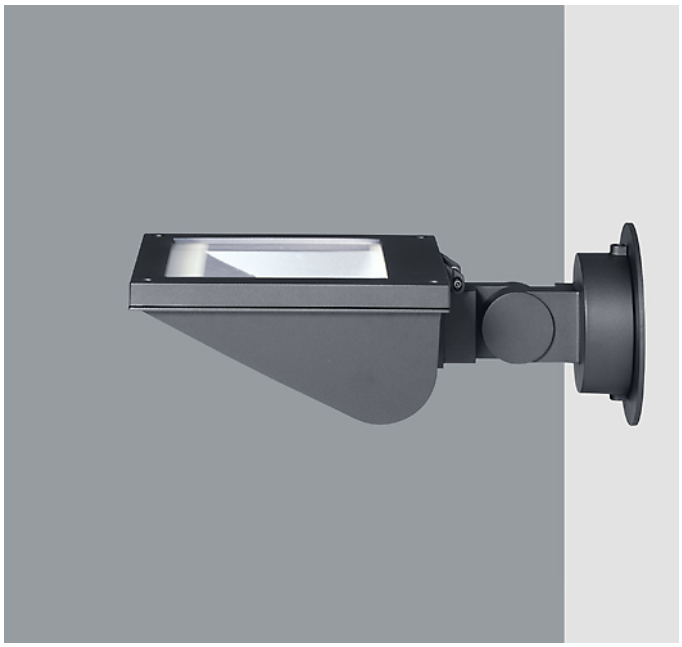
Product description
Housing: metal, white powder-coated. Lampholder carrier: cast aluminum, designed as heat sink. Fixing ring: plastic, black. Mounting ring with flush ceiling trim detail: plastic, white (RAL9002), for plasterboard ceilings up to 1" / 25mm. Mounting bracket: metal.
Mounting plate for preinstallation with junction box for through-wiring, black powder-coated. Electronic control gear 120V, 60Hz on top of junction box. Snap-in plug for connection between junction box and luminaire.
Low brightness reflector: aluminum, specular anodized. Cut-off angle 40° from horizontal. Upper aperture illuminates the light ring. Diffuser as lamp cover: glass, frosted.
Light-emitting ring: plastic, clear. Satin finish light aperture.
Type Non IC luminaire.
Insulation materials must be kept away from the luminaire by a minimum of 3". Thermally protected luminaire. Luminaires protected with disconnecting switch. Suitable for damp location. Removal of reflector allows access to junction box from below.
Max. ceiling thickness 3/4"
Weigth: 7.94 lbs / 3.60 kg

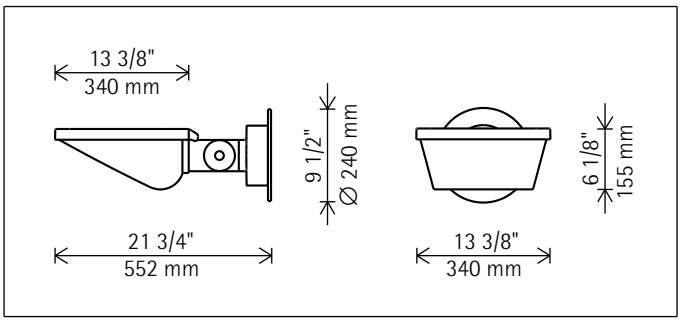
ERCO Lighting, Inc.
160 Raritan Center Parkway
Suite 10
Edison, NJ 08837
USA
Tel.: +1 732 225 8856
Fax: +1 732 225 8857
info.us@erco.com

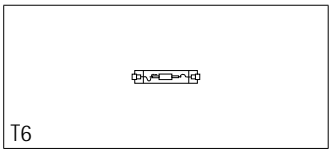
Technical Region: 120V/60Hz
Edition: 09.12.2004
Please download latest version from
www.erco.com/23051.023

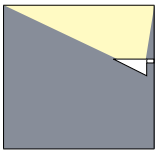
Lightscoop III Washlight

with mounting plate for metal halide lamps



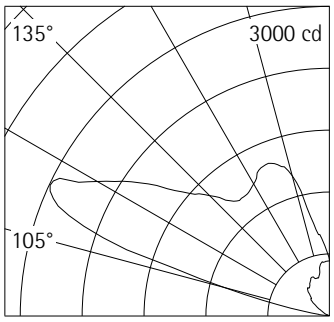






33245.024 Graphit m
T6 70W RSC 6500lm
ECG

Product description
Housing and hinge: corrosion-resistant, cast aluminum, No-rinse surface treatment. Double powder-coated. Optimized surface for reduced accumulation of dirt. Hinge with internal wiring, ±90° tilt. Graduated disc: stainless steel. Luminaire rotatable throught 240°. Mounting plate: corrosion-resistant aluminum.
2 cable entries. Through-wiring possible. 3-pole terminal block. Electronic control gear 277V, 60Hz. Reflector: aluminum, silver anodized. Without spill light.
Screw-mounted cover frame with safety glass: corrosion-resistant cast aluminum, double powder-coated. Hinge open for lamp replacement.
Suitable for wet location (IP65): dust-proof and water jet-proof.
Weigth: 24.69 lbs / 11.20 kg
Surface exposed to the wind
1.40 ft² / 0,13 m²



T6 70W RSC 6500lm

Mean illuminances E_m (fc)
Specifications:
Number of luminaires n > 5
Light loss factor 1.25
without indirect component
without peripheral area

T6 70W RSC 6500lm

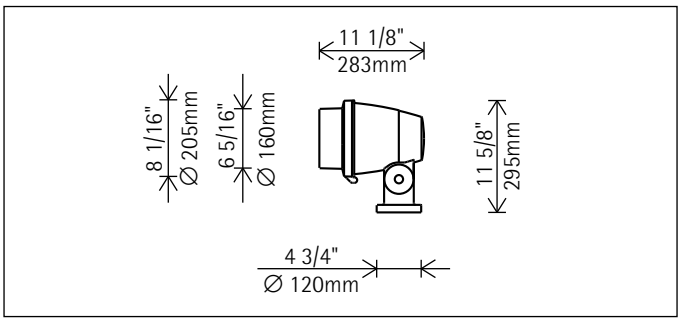
Wall height (ft) 20,00				
Offset from wall (ft)	7.00	7.00	8.00	8.00
Luminaire spacing (ft)	7.00	10.00	8.00	12.00
Illuminance (fc)	**12**	**8**	**10**	**7**

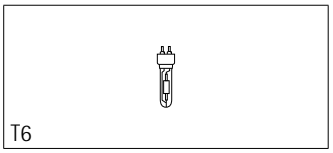
ERCO Lighting, Inc.
160 Raritan Center Parkway
Suite 10
Edison, NJ 08837
USA
Tel.: +1 732 225 8856
Fax: +1 732 225 8857
info.us@erco.com

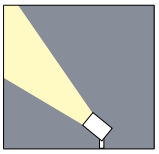
Technical Region: 277V/60Hz
Edition: 09.12.2004
Please download latest version from
www.erco.com/33245.024

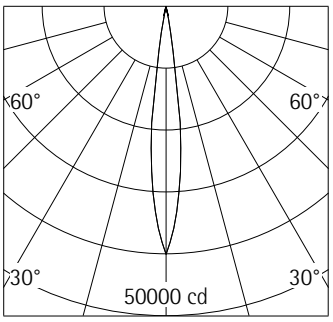
Beamer II Projector

with mounting bracket for metal halide lamps









T6 39W G12 3400lm

h(ft)	E(fc)	D(ft) 13°
6	1114	1'4"
12	278	2'9"
18	124	4'1"
24	70	5'6"
30	45	6'10"

34054.023 Graphit m
T6 39W G12 3400lm

Product description
For mounting on accessories.
Housing, hinge and mounting bracket: corrosion-resistant, cast aluminum, No-rinse surface treatment. Double powder-coated.
Optimized surface for reduced accumulation of dirt. Hinge with internal wiring, 130° tilt. Graduated disc: stainless steel.
Heat-resistant cable with plug.
Screw-mounted snoot with safety glass: corrosion-resistant cast aluminum, double powder-coated.
Anti-glare screen: metal, black lacquered. Cut-off angle 50°.
Without spill light.
Spot reflector: aluminum, silver anodized, specular.
Control gear or cantilever arm with control gear to be ordered separately.
Mounting accessories to be ordered separately.
Suitable for wet location (IP65) in connection with mounted control gear.
Weigth: 11.24 lbs / 5.10 kg
Surface exposed to the wind
0.64 ft² / 0,06 m²

ERCO Lighting, Inc.
160 Raritan Center Parkway
Suite 10
Edison, NJ 08837
USA
Tel.: +1 732 225 8856
Fax: +1 732 225 8857
info.us@erco.com

Technical Region: 120V/60Hz
Edition: 09.12.2004
Please download latest version from
www.erco.com/34054.023

INVUE™

DESCRIPTION

VISION Flood's cylindrical form blends effortlessly to architectural and landscape environments. Available in wattages up to 1000 watt Metal Halide and 750W High Pressure Sodium and in two (2) housing sizes, VISION Flood offers properly scaled solutions for any floodlighting application.

Catalog #	Type
Project	
Comments	
Prepared by	Date

SPECIFICATION FEATURES

A···Housing

One-piece die-cast aluminum housing maintains a nominal .125" thickness to endure the toughest environments while maintaining precise tolerance control.

B···Door

Die-cast aluminum door maintains a nominal .125" thickness and features concealed hinging to the housing. Door is secured with four (4) tamper resistant recessed stainless steel allen head fasteners. Door frame features an integral accessory channel for the mounting of optional light control accessories. Doorframe seals to housing with a continuous extruded silicone gasket. Lens is impact resistant .180" thick tempered clear flat glass, sealed to the door with a one-piece silicone gasket.

C···Optical Assembly

Choice of six (6) high efficiency optical systems constructed of premium 95% reflective anodized aluminum sheet, or bright specular anodized polished spun aluminum. Available distributions include Narrow Spot, Narrow Flood, Medium Flood, Wide Flood, Horizontal Spot, and Vertical Flood. All reflector modules feature toolless removal, quick disconnect wire connections, and are field interchangeable. Medium housing (VFM) optics feature mogul-base lampholders.

D···Knuckle

Heavy-duty die-cast aluminum knuckle utilizes a taper-lock adjustment mechanism for both solid engagement and infinite aiming adjustment. Knuckle adjustment is made via one (1) captive stainless steel allen head fastener consistent with doorframe fasteners. Tested to sustain 3G of vibration without loosing aiming position. VFM lower knuckle slip-fits over a standard 2" pipe size (2 3/8" O.D.) tenon.

E···Electrical Components

High Power Factor (HPF) ballast components are strategically located and heat sunk to the housing for cooler operation and longer life. 750W High Pressure Sodium electrical components are remote mounted into special mounting accessories.

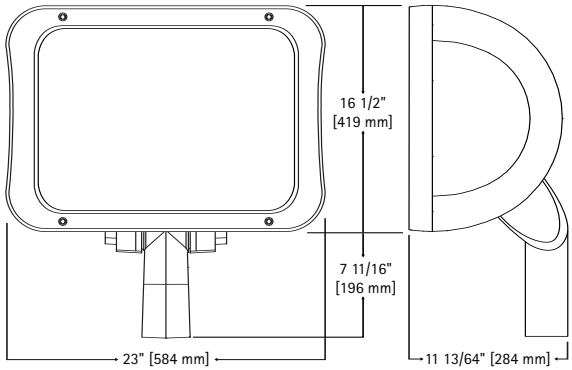
F···Finish

Housing and arm finished in a 5 stage premium TGIC polyester powder coat paint, 2.5 mil nominal thickness for superior protection against fade and wear. Standard colors include black, bronze, grey, white, dark platinum, and graphite metallic. RAL and custom color matches available. Consult your INVUE Lighting Systems Representative for more information.

Wattage Table

	VFM
Metal Halide	175, 250, 400, 1000W
Pulse Start Metal Halide	250, 320, 350, 400, 750W
High Pressure Sodium	150, 250, 400, 750W

DIMENSIONS



Certifications

IP65 Rated	U.L. 1598 Listed	3G Vibration Tested
CSA Listed	25 C Ambient	ISO 9001

VFM VISION FLOOD MEDIUM

150-1000W
Metal Halide
Pulse Start Metal Halide
High Pressure Sodium

ARCHITECTURAL FLOOD LUMINAIRE

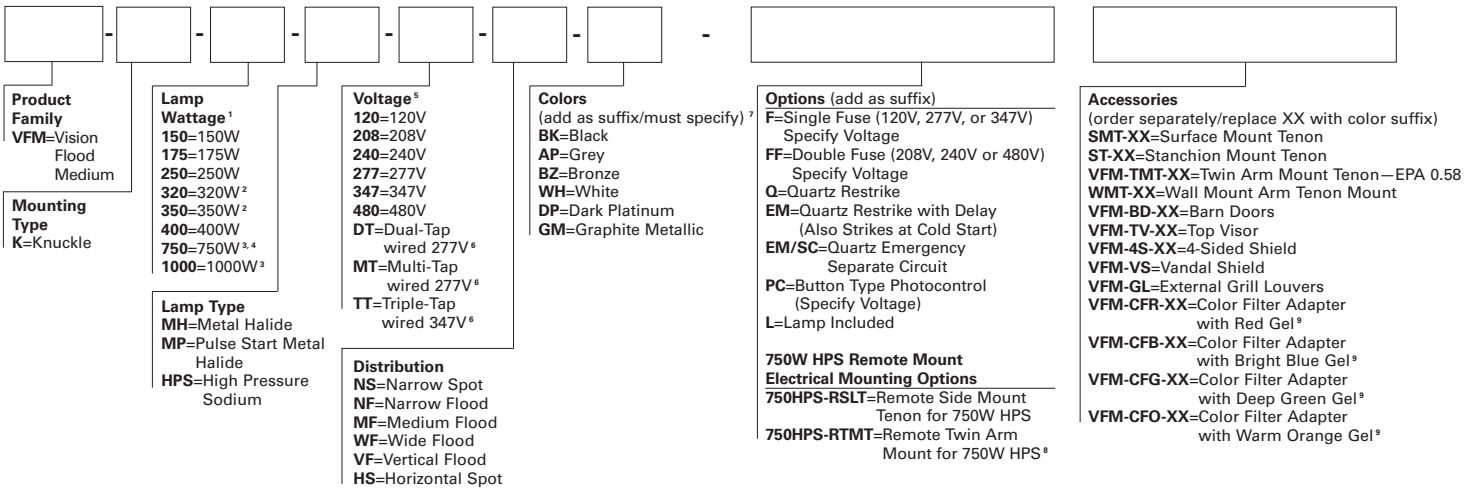
VISION series

EPA (effected projected area)
3.24

SHIPPING DATA (approx.)
Net Weight (lbs.): 53

ORDERING INFORMATION

Sample Number: VFM-K-400-MH-120-NF-WH



NOTE: **1** All HID lamps are mogul-base.
2 320/350 Pulse Start Metal Halide lamps only.
3 750 and 1000W Metal Halide require reduced envelope BT or ED37 lamp.
4 750W HPS requires specification of 750HPS-RSLT or 750HPS-RTMT remote electrical mounting options. Not directly compatible with any other mounting accessories. Reduced envelope ED-37 lamp required.
5 Products also available in non-US voltages and 50Hz for international markets. Consult factory for availability and ordering information.
6 Dual-Tap is 120/277V wired 277V. Multi-Tap is 120/208/240/277V wired 277V. Triple-Tap ballast is 120/277/347V wired 347V.
7 Custom and RAL color matching available upon request. Consult your INVUE Lighting Systems Representative for further information.
8 750HPS-RTMT mounting option includes dual power tray modules witin mounting arm. Specify one (1) 750HPS-RTMT mounting arm for every two (2) VFM 750W HPS fixtures.
9 Maximum allowable lamp wattage for use with color filter assemblies is 400W Metal Halide or High Pressure Sodium. Not compatible with 750W or 1000W lamp sources.

INVUE™

DESCRIPTION

ENTRI Series' family of modular faceplate designs provide a tasteful architectural statement equally suitable for indoor and outdoor environments. Available luminous faceplate window adds a signature look, while affording custom color capability.

Catalog #	Type
Project	
Comments	
Prepared by	Date

SPECIFICATION FEATURES

A···Housing

One piece die-cast aluminum construction for precise tolerance control and repeatability in manufacturing. Accommodates either up or down mounting configurations with no modifications. Downlight and uplight lens' are impact resistant 5/32" thick tempered clear or frosted flat glass, sealed to the housing with high strength VHB adhesive tape and a continuous silicone bead gasket. Silicone wireway plug on housing back wall seals incoming electrical leads to prevent moisture and dust entry.

B···Faceplate

One piece die-cast aluminum faceplate utilizes a continuous silicone gasket to seal securely to housing. Side hinged faceplate swings open via release of one (1) flush mount die-cast aluminum latch on housing side panel. Available luminous glass insert is .16" thick frosted glass, secured to back of faceplate with a continuous EPDM gasket. Available colored gel film secures behind glass.

C···Optical System

Choice of ten (10) high efficiency optical systems constructed of premium 95% reflective anodized aluminum sheet, or bright specular anodized polished spun aluminum. Available distributions include Type III, Type III with 10% secondary glow, Type III with pencil secondary, Forward Throw, Forward Throw with 10% secondary glow, Forward Throw with pencil secondary, FX grazing optic, FXF 50% up/50% down grazing optic, Tight Spot, and 50% up/50% down Tight Spot. Optical segments are rigidly mounted inside a heavy wall aluminum housing for superior protection. All segment faces are clean of rivet heads, tabs, or other means of attachment which may cause streaking in the light distribution.
All reflector modules feature quick disconnect wiring plugs. T6 Metal Halide lamps feature G12 lampholders, White Son™ High Pressure Sodium lamp features a GX12 lampholder, Quartz Halogen lamps feature mini-can screw based lampholders, and Compact Fluorescent lamps feature GX24q-(3,4,5) 4-pin lampholders.

D···Electrical Components

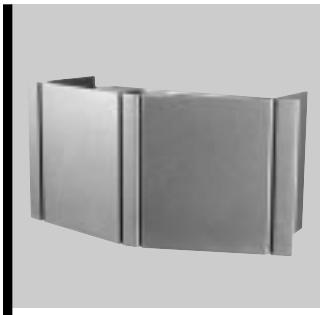
Ballast and related electrical componentry are heat sunk to the housing for cooler operation and prolonged life.

E···Mounting

Standard zinc plated attachment plate mounts directly to 4" J-Box. Fixture slides over mounting plate and is secured with two (2) concealed stainless steel fasteners. Mounting plate features one-piece, EPDM gasket on back side of plate to firmly seal fixture to wall surface, forbidding entry of moisture and particulates. Optional mounting arrangements utilize a die-cast aluminum adapter box to allow for surface conduit wiring, quartz lamp options, and emergency battery pack capability.

F···Finish

Housing finished in a 5 stage premium TGIC polyester powder coat paint, 2.5 mil nominal thickness for superior protection against fade and wear. Standard colors include black, bronze, grey, white, dark platinum, and graphite metallic. RAL and custom color matches available. Consult your INVUE Lighting Systems Representative for more information.



ENT ENTRI TRIANGLE REVEALS

26-250W

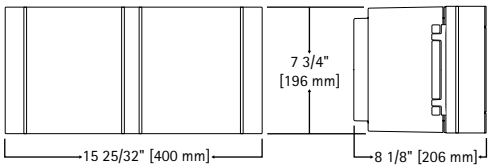
Metal Halide
WhiteSON High Pressure Sodium
Compact Fluorescent
Quartz Halogen

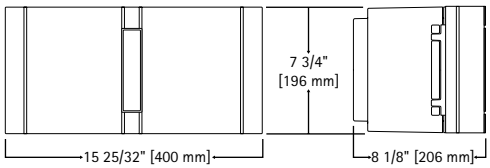
ARCHITECTURAL WALL LUMINAIRE

DARK SKY COMPLIANT FCO Full Cutoff *

*In downlight only configurations with no faceplate window.

DIMENSIONS





Wattage Table

	ENT
Metal Halide	39, 70, 100, 150W
White Son HPS	100W
Compact Fluorescent	26, 32, 42, 57W
Dual Compact Fluorescent	(2) 26, (2) 32, (2) 42W
Quartz Halogen	100, 150, 250W

Certifications

IP66 Rated	U.L. 1598		FCO Full Cutoff *
CSA Listed	25°C Ambient	ISO 9001	

SHIPPING DATA (approx.)
Net Weight (lbs.): 13
Volume (cu. ft): 4.5

COOPER Lighting
www.cooperlighting.com

Consult your representative for additional options and finishes.

AVU032303

ORDERING INFORMATION

SAMPLE NUMBER: ENT-150-MH-120-EB-3S-BK-LG-L

Product Family
ENT=ENTRI Triangle Reveals

Lamp Wattage [1]
HID
39=39W
70=70W
100=100W
150=150W
Compact Fluorescent [2]
26=26W
32=32W
42=42W
52=52W [3]
57=57W [4]
64=64W [3]
84=84W [3]
Halogen [5]
100=100W
150=150W
250=250W

Lamp Type
MH=Metal Halide
WS=White SON High Pressure Sodium [6]
CF=Compact Fluorescent [7]
HL=Quartz Halogen

Voltage [8]
120=120V
208=208V
240=240V
277=277V
347=347V
DT=Dual-Tap Wired 277V [9]
MT=Multi-Tap Wired 277V [9]
TT=Triple-Tap Wired 347V [9]

Ballast
MB=Magnetic (HID only)
EB=Electronic [10]
X=None (for Halogen Lamp)

Distribution
Downlight or Uplight (HID or Halogen)
3S=Type III
FT=Forward Throw
FX=Wall Grazing Optic
TS=Tight Spot
Downlight and Uplight (HID and Halogen)
3SG=Type III, 90% Main/10% Secondary Glow
3SP=Type III with Pencil Secondary
FTG=Forward Throw, 90% Main/10% Secondary Glow
FTP=Forward Throw with Pencil Secondary
FXF=Wall Grazing Optic, 50% up/50% Down
TSF=Tight Spot, 50% up/50% Down
Compact Fluorescent
CFM=100% Main, Up or Downlighting
CFG=90% Main + 10% Secondary Glow

Colors
(add as suffix/must specify) [11]
BK=Black
AP=Grey
BZ=Bronze
WH=White
DP=Dark Platinum
GM=Graphite Metallic

Optional Luminous Faceplate Insert
(add as suffix)
LG=Luminous Glass Insert
LGO=Luminous Glass Insert with Warm Orange Gel
LGR=Luminous Glass Insert with Red Gel
LGB=Luminous Glass Insert with Bright Blue Gel
LGG=Luminous Glass Insert with Deep Green Gel

Options (add as suffix)
F=Single Fuse (120, 277, or 347V) Specify Voltage
FF=Double Fuse (208V, 240V or 480V) Specify Voltage
DSAB=Dual Fluorescent Switching Control Adapter Box [12]
QAB=Quartz Restrike Adapter Box
EMAB=Quartz Restrike with Delay Adapter Box (Also Strikes at Cold Start)
EM/SCAB=Quartz Emergency Separate Circuit Adapter Box
CF/EMAB=Emergency Battery Backup Adapter Box [13]
PC=Button Type Photocontrol (specify voltage)
WG=Wire Guard
FRM=Frosted Main Flat Glass
FRS=Frosted Secondary Flat Glass [14]
L=Lamp Included (Standard for all **Halogen** lamps)

Accessories
(order separately/replace XX with color suffix)
VA2001-XX=Thru-way Box

NOTES: **1** All MH lamps are T6 envelope with G12 lamp base. All HPS lamps are T6 envelope with GX12 lamp base.
2 All 26/32/42/57W CF lamps feature a 4-pin lamp base. Available in CFM and CFG distributions only.
3 Dual compact fluorescent lamps.
4 Nominal M.O.L lamp length of 57W CFL not to exceed 7".
5 All Halogen lamps are T4 envelope with mini-can base.
6 WhiteSON HPS lamp available in 100W only. Requires electronic ballast. 120/277V only. Requires use of VA2001 accessory Thru-way Box.
7 Compact Fluorescent ballasts contain internal fusing. No supplemental fusing is necessary. CF ballasts are 120 through 277V.
8 Products also available in non-US voltages and 50Hz for international markets. Consult factory for availability and ordering information.
9 Dual-tap is 120/277V wired 277V. Multi-tap is 120/208/240/277V wired 277V. Triple-tap is 120/277/347V wired 347V.
10 120 through 277V only. Electronic ballasts contain internal fusing, no supplemental fusing is necessary. Electronic ballast available with all CF lamps, and 39/70/100W MH lamps. Available with 150W MH lamp with use of VA2001 accessory Thru-way Box.
11 Custom and RAL color matching available upon request. Consult your INVUE Lighting Systems Representative for further information.
12 Dual switching requires dual 26, 32, or 42W compact fluorescent lamps. Allows independent switching control of each lamp through use of two electronic ballasts. Allows 50% power reduction when dual ballasts are independently wired and controlled.
13 Battery backup provides 90 minutes of supplemental light at 60% of initial rated lamp lumens. Must specify 26/32/42W Compact Fluorescent lamp.
14 Frosted secondary lens provided standard on 3SG, FTG, and CFG distributions.

LITECONTROL

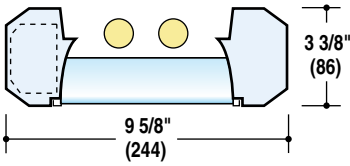
Type:
Project:

LC-90™

P-ID-9000

Pendant-Mounted Indirect/Direct

Specifications



HOUSING. Die-formed and welded 20-gauge steel. Internal end headers have clearance holes for easy row mounting. End caps are 14-gauge steel, with no holes or knockouts, finished to match housing. Four fasteners on each end cap allow close, fast attachment to ends of individual fixtures and ends of rows.

UPPER SIDE REFLECTORS. Die-formed specular anodized aluminum reflector sheet.

PARABOLIC BAFFLE. Die-formed .020" thick specular low-glare aluminum. Snap-in baffle is secured in open or closed position by four spring-wire clips. Baffle shall meet at fixture joints to exhibit continuous baffle appearance with no breaks in cell spacing. **PARSS** - 23° lengthwise and crosswise shielding. Cross blades incorporate vertical "grain" and are 1 9/16" deep by 4 1/4" OC. Twelve cells per 4' 3" fixture. For other baffle and diffuser choices, see "Diffusers - alternate distribution options".

BALLAST. Electronic, high power factor, thermally protected Class P, Sound Rated A, manufactured by a UL Listed manufacturer, as available, determined by Litecontrol. The minimum number of ballasts will be used.

TANDEM WIRING. Where listed in Ordering guide below, fixtures wired to switch in-line lamps separately, providing two or three (three-lamp cross-section fixtures only) levels of light.

PRE-WIRING. Fixtures are supplied with #12 AWG type THHN wire for branch circuits. One end will have factory installed push-in quick-connects. The other end will be stripped back 1/2" for quick connection in field. For fixtures to accommodate special circuits such as night light and emergency, etc., in-field wiring will be required. See Pre-Wiring Information for details.

SYSTEM CONNECTORS. Corners, tees, and crosses available. Sides are die-formed and welded 20-gauge steel with a filler plate across the bottom of the connector. Bottom and sides to be smooth with no exposed fasteners or knock-outs. Each system connector shall have a rigid cross-member with a .687" diameter stem hole at center to accept any of Litecontrol's pendant assemblies.

SUSPENSION. Aircraft cable or rigid stem pendants attach to fixture using Litecontrol's easy-hang system, with one attachment plate for use at any support point. **FAI/ACC** field adjustable 51" is standard. See Aircraft Cables and Stems for details.

CERTIFICATION. Fixture and electrical components shall be UL and/or CUL Listed and shall bear the I.B.E.W., A.F. of L. label. (UL LISTED)

Note: Litecontrol reserves the right to change specifications without notice for product development and improvement.

Ordering guide

Product, Lamping, & Length

P -	ID -	90	2	4	T8 -
Mounting	Distribution	Series	Lamp Count	Nominal Length (ft)	Lamp Type
P= Pendant-Mounted	**ID**= Indirect/ Direct		**2, 3** → **4** **4, 6** → **8** see **notes**		**T8**

Mounting Options
- add to end of order number

Aircraft Cables
- ☐ **FAI/ACC** (field adjustable) *standard*
- ☐ **ACC** (fixed)

Stems
- ☐ **P6S** (stem)
- ☐ **SC/P6** (sloped ceiling)
- ☐ **EQ/P6** (earthquake)

Options

PARSS -	CWM -	TW -	ELB -	2CWQ -	EF -	1 2 0
Diffuser	Color	Tandem-Wiring	Ballast	Pre-Wiring	Option	Volts
PARSS **CV** **PFCV** **PARSS30** **PARSS75** **PARSS3075** see **Alternate distribution options**	**CWM** (Matte White) is standard see **page 9** for other colors	-- → **TW** →	**ELB** **ELB10** **DA-ELB** **HEL/ELB** **ECO/ELB** see **Ballast options**	**1CWQ** **2CWQ**	**EF** **F** see **Options**	**120** **277**

notes:
Lamp Count = the total number of lamps in fixture

For Ordering guide information in shaded areas, choose selection by reading ACROSS the shaded areas for correct specifications.

Cross-section lamping

2-T8 **3-T8**

P-ID-9068T8-PARSS-CWM-TW-ELB-2CWQ-EF-120-FAI-ACC is a typical catalog number for a six-lamp (3 lamps in cross-section), 8-foot long T8 fixture with parabolic baffle, painted Matte White, tandem-wired, with electronic ballast, pre-wired with two-circuit branch wiring and quick-connects with optional emergency fluorescent ballast, 120 volts, mounted with field adjustable aircraft cables.

Questions to Ask

1. 120 or 277 volt? **2.** Row information? Desired fixture length? **3.** Diffuser type? **4.** White, *LiteColor*, or special color? **5.** Tandem wiring? **6.** Cables or stems, what length? **7.** Other options?

Diffusers - alternate distribution options

The indirect/direct distribution of the standard fixture is approximately 60% / 40%. The following options modify that ratio or provide alternate diffuser (baffle) choices as indicated. See the photometric data and the detailed descriptions below for further information.

CV Cover. Solid cover over lamps to provide 100% direct distribution, finished in high-reflectance Matte White. Can be added or removed in field.

PFCV 35/65 Perforated cover. Provides 35% indirect, 65% direct distribution, finished in high-reflectance Matte White. Can be added or removed in field.

Specify the following options in place of **PARSS** in the catalog number shown in the "Ordering guide":

PARSS30 30° lengthwise and 23° crosswise parabolic baffle. For increased lengthwise shielding with closer baffle spacing. Cross-blades incorporate vertical "grain" and are 1 9/16" deep by 3" OC. Seventeen cells per 4' 3" fixture.

PARSS75 75/25 Uplight Reflector for PARSS baffle. Linear reflectors provide 75% indirect, 25% direct distribution.

PARSS3075 75/25 Uplight Reflector for PARSS30 baffle. Linear reflectors provide 75% indirect, 25% direct distribution.

Uplight Uplight Reflectors are designed for those jobs where more indirect light and greater shielding is desired. The Uplight Reflector option is available as an accessory to either the standard 23° parabolic baffle (**PARSS**) or the 30° parabolic baffle (**PARSS30**) for both two- and three-lamp fixtures. Specify in the catalog number, in place of **PARSS**, either **PARSS75** or **PARSS3075**, where the "75" refers to the resulting 75% uplight.

Downlight Downlight Reflectors offer a greater percentage of direct distribution, and in the case of the Full Downlight Cover (**CV**), the fixture becomes a 100% direct fixture. For applications where some indirect light is preferred, but more direct light than with the standard distribution, the 35/65 Downlight Perforated Cover (**PFCV**) is available. To specify either of these options, just add the designation with the catalog number. While they can be used with either two or three lamps and either the **PARSS** or **PARSS30** diffusers, they would not be used in the same fixture with Uplight Reflectors.

Ballast options

Specify in place of **ELB**, contact factory for availability:

ELB10 Electronic ballast, same specification as **ELB**, except less than 10% THD.

DA-ELB Advance Mark VII dimming ballast.

HEL/ELB Osram dimming ballast.

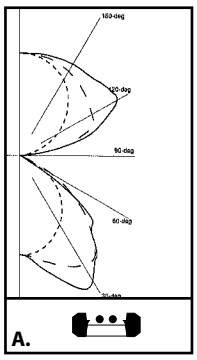
ECO/ELB Lutron ECO-10 dimming ballast.

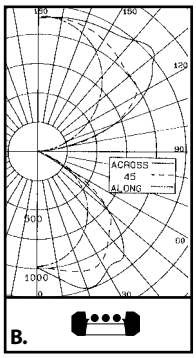
Options

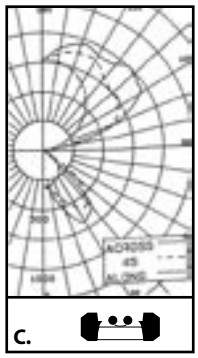
EF Emergency fluorescent ballast. Battery-powered ballast from a UL Listed manufacturer will operate one T8 lamp for 1 1/2 hours.

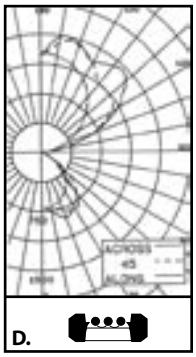
F Fuse. Slow or fast blow, determined by Litecontrol.

Photometric data









A. P-ID-9024T8-PARSS 90.6% Efficiency
ITL Certified Test Report # ITL36360

B. P-ID-9034T8-PARSS 84.1% Efficiency
Litecontrol Certified Test Report #13031361

C. P-ID9024T8 - PARSS75 80.6 % Efficiency
Litecontrol Certified Test Report #24521990

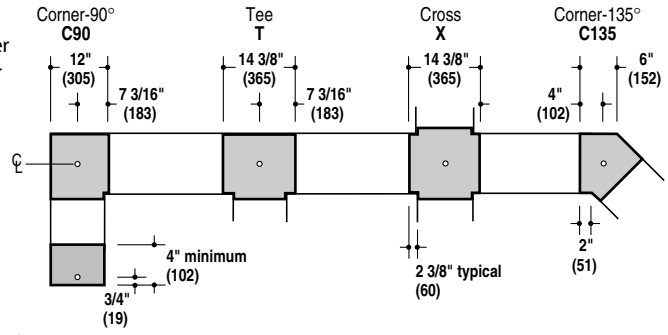
D. P-ID9034T8 - PARSS75 78.3 % Efficiency
Litecontrol Certified Test Report #24531990

System connectors

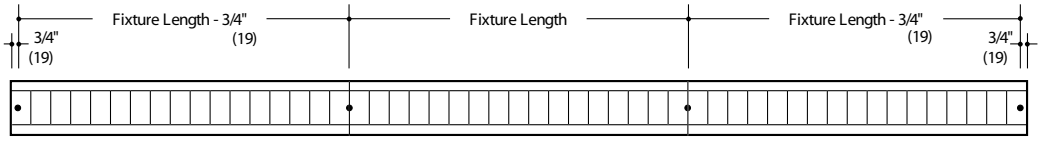
Catalog Number

Series -	Connector -	Finish
P-ID-9000	C90	
P-ID-9000	C135	
P-ID-9000	T	
P-ID-9000	X	
P-ID-9000	SE (length)	

P-ID-9000-C90-CWM is a typical catalog number for a 90° corner connector finished Matte White.



Row diagram



Fixture Lengths: 4' 3", 8' 6"
● Indicates pendant locations

online
Quick Find
Click on
90

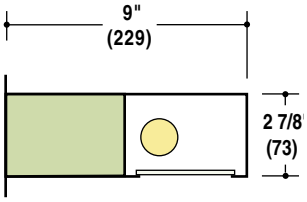
LITECONTROL

Type:
Project:

Wall/Cove®

8300
Perimeter

Specifications



HOUSING. Die-formed and welded 20-gauge steel, provided with keyhole slots for mounting and knockouts for wire feed and continuous wiring. Support angles of 14-gauge steel shall be provided to prevent sagging or distortion of the housing.
SP REFLECTOR. SP8300 series incorporates a specular reflector for one-lamp cross-section fixtures, directing light towards wall for use above bulletin boards or chalkboards.
BALLAST COVER. Die-formed steel with high-reflectance white finish. It shall be easily removable for servicing by means of captive 1/4-turn fasteners.
BALLAST. Electronic, high power factor, thermally protected Class P, Sound Rated A, manufactured by a UL Listed manufacturer, as available, determined by Litecontrol. The minimum number of ballasts will be used.
CERTIFICATION. Fixture and electrical components shall be UL and/or CUL Listed and shall bear the I.B.E.W., A.F. of L. label. UL LISTED
Note: Litecontrol reserves the right to change specifications without notice for product development and improvement.

Ordering guide

Product, Lamping, & Length

83 -	1	4	T8 -
Series **83** **SP83** see **notes**	Lamp Count **1, 2** → **1, 2** → **1, 2** → **2, 4** → **2,4** → see **notes**	Nominal Length (ft) **2** **3** **4** **6** **8**	Lamp Type **T8**

Options

BW-	CWM -	ELB -	EF -	120
Diffuser **XA** **FP** **BW** see **Diffusers**	Color **CWM** (Matte White) is standard see **page 9** for other colors	Ballast **ELB** **ELB10** **DA-ELB** **HEL/ELB** **ECO/ELB** see **Ballast options**	Option **EF** **F** **TW** see **Options**	Volts **120** **277**

notes:
Lamp Count = the total number of lamps in fixture
SP reflector available in 1 lamp cross-section fixture only in either 4' or 8' lengths.
For Ordering guide information in shaded areas, choose selection by reading ACROSS the shaded areas for correct specifications.

Cross-section lamping

8314T8-BW-CWM-ELB-EF-120 is a typical catalog number for a one-lamp (1 lamp in cross-section), 4-foot long T8 fixture with white blade baffles, painted Matte White, with electronic ballast, with optional emergency fluorescent ballast, 120 volts.

Questions to Ask
1. 120 or 277 volt? **2.** Row information, including desired fixture length?
3. White, *LiteColor*, or special color? **4.** Other options?

Diffusers

XA Lens. Diagonal 3/16" conical prisms, .100" thick extruded acrylic, regressed.
FP Lens. White acrylic diffuser, .100" thick, regressed.
BW Blade Baffles. White, 1/2" high x 1/2" OC, 20-gauge steel, regressed.

Ballast options

Specify in place of **ELB**, contact factory for availability/compatibility with lamping:
ELB10 Electronic ballast, same specification as **ELB**, except less than 10% THD.
DA-ELB Advance Mark VII dimming ballast.
HEL/ELB Osram dimming ballast.
ECO/ELB Lutron ECO-10 dimming ballast.

Options

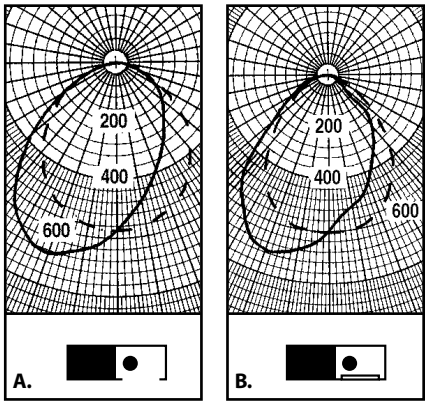
EF Emergency fluorescent ballast. Battery-powered ballast from a UL Listed manufacturer will operate one T8 lamp for 1 1/2 hours.
F Fuse. Slow or fast blow, determined by Litecontrol.
TW Tandem Wiring. Fixtures wired to switch in-line lamps separately, providing two (two-lamp cross-section fixtures only) levels of light.

System connectors

Series -	Telescoping Extension -	Finish	Description
8300-	**IC**	**CWM**	Inside corner 0-12"
8300-	**OC**	**CWM**	Outside corner 0-12"
8300-	**SE**	**CWM**	Straight extension 0-12"

8300-IC-CWM is a typical catalog number for an inside corner connector.

Photometric data

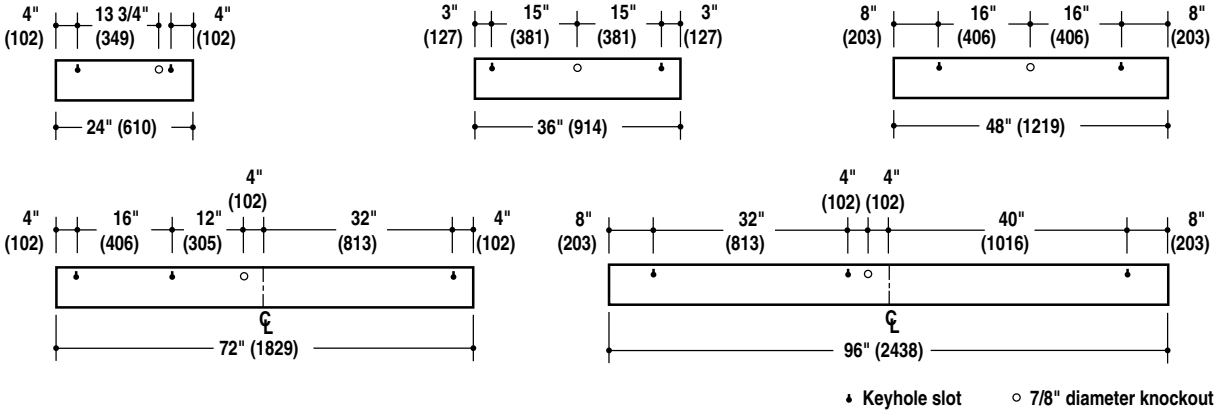


A. 8314RS-120
Litecontrol Certified Test Report #15912000

B. 8314RS-XA-120
Litecontrol Certified Test Report #15912010

C. 8314RS-BW-120
Litecontrol Certified Test Report #15912300

Planning for installation



online
Quick Find
Click on
83

LITECONTROL

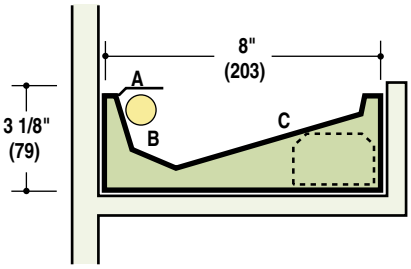
Type:
Project:

Cove-30™

CC-AI-3000

Concealed Cove System

Specifications



A Luminance Control Deflector™ minimizes socket shadows.

B High-reflectance aluminum for maximum horizontal light projection.

C High-reflectance white reflector for efficient indirect distribution.

HOUSING. Die-formed 20-gauge steel. Paint finish is baked white enamel. Ends provided with a 7/8" hole to accommodate pre-wiring.

REFLECTORS. Die-formed steel, finished in high-reflectance white, precisely shaped for maximum horizontal light projection. Configuration with four reflector surfaces includes a high-reflectance specular aluminum insert. Luminance Control Deflector™ (LCD), finished in high-reflectance white, reduces wall brightness directly above fixture and minimizes socket shadows between fixtures.

BALLAST. Electronic, low-profile (T5 only), high power factor, thermally protected Class P, Sound Rated A, manufactured by a UL Listed manufacturer, as available, determined by Litecontrol. The minimum number of ballasts will be used.

TANDEM WIRING. Where listed in Ordering guide below, fixtures wired to switch in-line lamps separately, providing two (two-lamp cross-section fixtures only) levels of light.

PRE-WIRING. Fixtures are supplied with #12 AWG type THHN wire for branch circuits. One end will have factory-installed push-in quick-connects. The other end will be stripped back 1/2" for quick connection in field. For fixtures to accommodate special circuits such as night light and emergency, etc., in-field wiring will be required. See Pre-wiring Information for details.

MOUNTING. Fixtures are installed in cove provided by others. See Planning for installation for detailed information.

CERTIFICATION. Fixture and electrical components shall be UL and/or CUL Listed and shall bear the I.B.E.W., A.F. of L. label. UL LISTED

Note: Litecontrol reserves the right to change specifications without notice for product development and improvement.

Ordering guide

Product, Lamping, & Length

CC -	AI -	30	2	4	T8
Mounting **CC**= Concealed Cove	Distribution **AI**= Asymmetric indirect	Series	Lamp Count	Nominal Length (ft)	Lamp Type
			1*, 2 →	**2**	**T8** **T5HO** **T5**
			1*, 2 →	**3**	
			1*,2 →	**4**	
			2, 4 →	**6**	
			2, 4 →	**8**	
			1 →	**2**	**BX40** **BX50**
			2 →	**4**	
			4 →	**8**	
			2 →	**3**	**BX39**
			4 →	**6**	
			see **notes***		

Options

CWM -	ELB	2CWQ	EF	120
Color **CWM** (Matte White)	Ballast **ELB** **ELB10** **DA-ELB** **HEL/ELB** **ECO/ELB** **LPD/ELB** see **Ballast options**	Pre-wiring **1CWQ** **2CWQ**	Option **EF** **LP/EF** **F** **WL** **WKC/WP** **AMA** see **Options**	Volts **120** **277**

notes: Lamp Count = the total number of lamps in fixture

* For applications using one-lamp, T5HO fixtures see Cove-25.

For Ordering guide information in shaded areas, choose selection by reading ACROSS the shaded areas for correct specifications.

Cross-section lamping

CC-AI-3024T8-CWM-TW-ELB-2CWQ-EF-120 is a typical catalog number for a two-lamp (2 lamps in cross-section), 4-foot long T8 fixture, painted Matte White, with tandem wiring and electronic ballast, pre-wired with two-circuit branch wiring and quick-connects, with optional emergency fluorescent ballast, 120 volts.

Questions to Ask

1. 120 or 277 volt? **2.** Row information, including desired fixture lengths?

3. Other options?

Ballast options

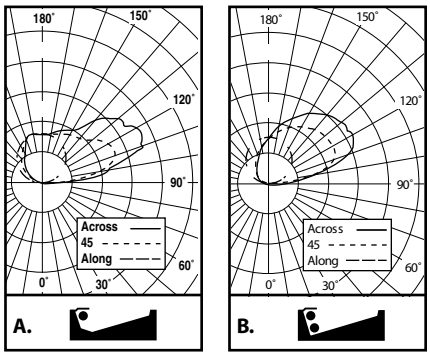
Specify in place of **ELB**, contact factory for availability/compatibility with lamping:

ELB10 Electronic ballast, same specification as **ELB**, except less than 10% THD.
DA-ELB Advance Mark VII dimming ballast.
HEL/ELB Osram dimming ballast.
ECO/ELB Lutron ECO-10 dimming ballast.

Options

EF Emergency fluorescent ballast. Battery powered ballast from UL Listed manufacturer will operate one T8, T5, or T5HO lamp for 1 1/2 hours.
LP/EF Low-profile emergency fluorescent ballast. Battery-powered ballast from a UL Listed manufacturer will operate one T5 or T5HO lamp for 1 1/2 hours.
LPD/ELB T5 dimming ballast. Consult factory for availability.
F Fuse. Slow or fast blow, determined by Litecontrol.
WL Fixture supplied with lamps (3500K). Lamps are shipped separately. Contact factory for availability.
WKC/WP Corner wiring kit. With quick-connects.
AMA Adjustable Mounting Angle. Quick attach component to tilt housing either 5° or 10°.

Photometric data



A. CC-AI-3014T8-LP/ELB 79.5% Efficiency
Litecontrol Certified Test Report #29611000

B. CC-AI-3024T8-LP/ELB 63.2% Efficiency
Litecontrol Certified Test Report #29521000

Planning for installation

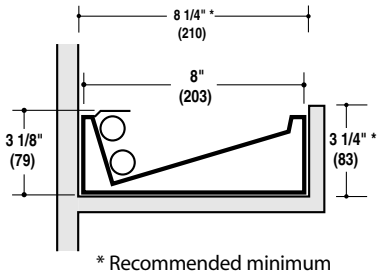
Cove provided by others. Interior cove dimensions should allow for 3 1/8" x 8" fixture cross-section to fit within cove, taking into consideration as-built tolerances. For maximum efficiency, wall and ceiling above cove should have matte surfaces with high reflectances. See design guidelines below. Maximum fixture weight per foot is four pounds.

Corner Wiring Kit

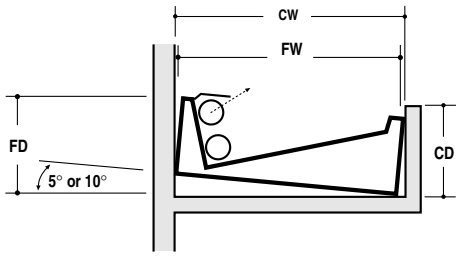
Provides the advantages of pre-wiring around corners. Make connections at each end of the flexible whip, push wires into fixtures, then snap onto headers. Specify **WKC/WP** (with push-in quick-connects).

Lower Beam Angle

When room geometry allows, fixture may be tilted, thereby lowering the beam and resulting in a more effective distribution of light into the room. **AMA** (Adjustable Mounting Angle) quick attach component snaps onto housing to raise back of fixture 5° or 10°. Recommended cove sizes are shown.



* Recommended minimum interior cove



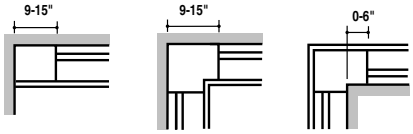
Angle of Tilt	Ordering Option	Fixture Depth (**FD**)	Fixture Width (**FW**)	Recommended Cove Depth (**CD**)	Recommended Cove Width (**CW**)
0	(standard)	3 1/8"	8"	3 1/4"	8 1/4"
5°	**AMA**	3 3/4"	8 1/4"	3 1/4"	8 5/8"
10°	**AMA**	4 1/4"	8 3/8"	3 1/4"	8 5/8"

Design guidelines

For maximum illumination level flexibility, five lamp combinations are available. For a one-lamp T5 or T5HO fixture in a 2 1/16" deep x 6" wide housing refer to Cove-25 (CC-AI-2500).

As the distance from fixture to ceiling is increased, light distribution becomes more uniform. To avoid excessive brightness on ceiling, maximize the distance from the fixture to the ceiling. A fixture with less output (i.e., one-lamp T8) may be tolerated closer to ceiling than one with higher output. To best evaluate an acceptable mounting position, a mock-up is recommended.

Position fixtures along walls as desired to satisfy visual design goals. To avoid excess corner brightness, stop fixtures 9-15" short of end walls; 0-6" from outside corner.

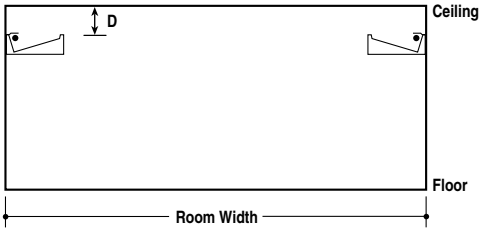


If using high-output T5 lamps, be advised that lamp lumens per foot for each of the lamp lengths are different. Caution is advised when mixing fixture lengths in rows.

For even lower beam throw and better distribution, consider the AMA option. This lowers the beam throw by 5° or 10°. Size the cove to hide lamps and fixture. This should only be considered if viewing angles prevent a direct view of the raised portion of the fixture, or if a cut-off angle below horizontal is deemed acceptable.

If the zonal cavity method is used to calculate an average illumination, it is advised in a perimeter layout to derate the illuminance by 10%.

If uniformity of light levels is desired,
room width should not exceed the following:
Fixtures along one wall: 6xD
Fixtures on opposite walls: 12xD



online
Quick Find
Click on **30**

LITECONTROL

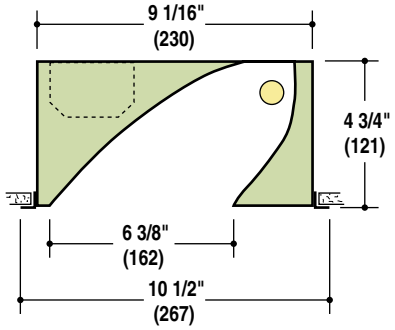
Type:
Project:

Recessed Wall/Wash™

G-D-1000

Asymmetric Recessed Direct

Specifications



U.S. Patent No. D351,039

HOUSING. Die-formed and welded 20-gauge steel finished in baked Matte White enamel. Ends are notched to allow installation in exposed inverted T-bar grid ceiling (NEMA type GF) with main T-bars at 2'-0" OC or 4'-0" OC. Exposed flanges along the sides of the fixture support the ceiling tiles. The housing ends are provided with 7/8" diameter knockouts (1/2" trade size). The top of the housing has an access opening covered by a plate containing two 7/8" diameter knockouts.

REFLECTOR. Die-formed specular aluminum .

BALLAST. Electronic, high power factor, thermally protected Class P, Sound Rated A, manufactured by a UL Listed manufacturer, as available, determined by Litecontrol. The minimum number of ballasts will be used.

MOUNTING. The fixture is intended for installation in standard exposed inverted T-bar grid ceiling (NEMA type GF) with main T-bars at 2'-0" OC or 4'-0" OC. Exposed flanges along the side of the fixture support the tiles. T-bar safety clips at the end of the fixture shall be attached at the factory prior to shipping. 1/4" diameter holes have been provided, positioned at 90° to each other, along the upper edges of the housing for installation of supplementary chain or wire support as may be required by local codes. Estimated installed weight of 4-foot fixture is 20 lbs. For drywall or plaster ceiling installations, a ceiling trim conversion kit is available. Consult factory.

CERTIFICATION. Fixture and electrical components shall be UL and/or CUL Listed and shall bear the I.B.E.W., A.F. of L. label. UL LISTED

Note: Litecontrol reserves the right to change specifications without notice for product development and improvement.

Ordering guide

Product, Lamping, & Length

G -	D -	10	1	4	T8 -
Mounting **G**= Grid	Distribution **D**= Direct	Series	Lamp Count	Nominal Length (ft)	Lamp Type
			1, 2 →	**2**	**T8**
			1, 2 →	**4**	
			1, 2 →	**2**	**BX**
			1, 2 →	**4**	
			see **notes**		

Options

CWM -	ELB -	EF -	120
Color	Ballast	Option	Volts
CWM (Matte White)	**ELB** **ELB10** **DA-ELB** **HEL/ELB** **ECO/ELB** see **Ballast options**	**EF** **F** **T2M** **T2S** see **Options**	**120** **277**

notes:

Lamp Count = the total number of lamps in fixture

For Ordering guide information in shaded areas, choose selection by reading ACROSS the shaded areas for correct specifications.

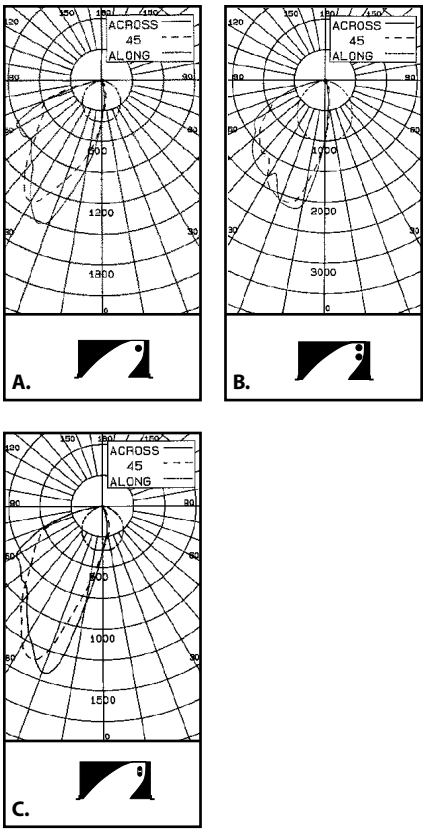
Cross-section lamping

G-D-1014T8-CWM-ELB-EF-120 is a typical catalog number for a one-lamp (1 lamp in cross-section), 4-foot long T8 fixture, painted Matte White, with electronic ballast, with optional emergency fluorescent ballast, 120 volts.

Questions to Ask

1. 120 or 277 volt? **2.** Other options? **3.** Ceiling type?

Photometric data



A. G-D-1014T8 68.0% Efficiency
Litecontrol Certified Test Report #18911000

B. G-D-1024T8 56.7% Efficiency
Litecontrol Certified Test Report #18921002

C. G-D-1012BX40 58.1% Efficiency
Litecontrol Certified Test Report #18910000

Ballast options

Specify in place of **ELB**, contact factory for availability/compatibility with lamping:

ELB10 Electronic ballast, same specification as **ELB**, except less than 10% THD.
DA-ELB Advance Mark VII dimming ballast.
HEL/ELB Osram dimming ballast.
ECO/ELB Lutron ECO-10 dimming ballast.

Options

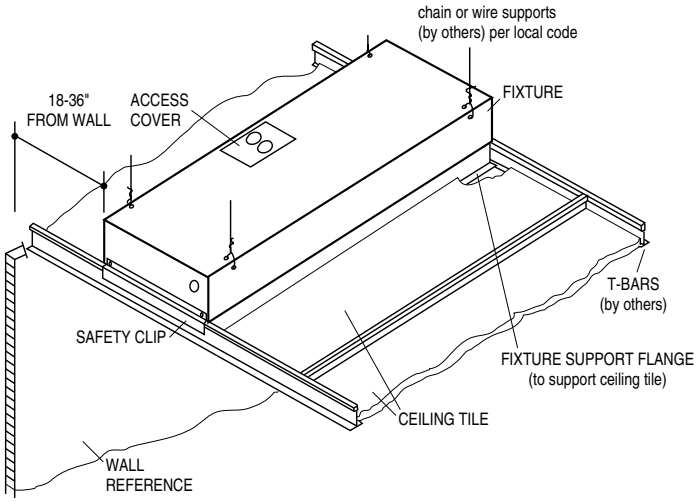
EF Emergency fluorescent ballast. Battery-powered ballast from a UL Listed manufacturer will operate one T8 lamp for 1 1/2 hours.
F Fuse. Slow or fast blow, determined by Litecontrol.
T2M, T2S Tandem ballasting. For energy considerations combine **T2M** (Master) with **T2S** (Slave).
T2M - Fixture would contain one two-lamp ballast.
T2S - Fixture would not contain a ballast.

Planning for installation

Lift fixture diagonally through the opening above ceiling grid. Rest the fixture on the T-bars so that safety clips straddle T-bars, and fixture support flanges (which support ceiling tiles) are positioned between T-bars.

Loosen access cover screws and remove cover using keyhole openings. Remove one knockout in cover and attach flexible conduit feed (supplied by electrical contractor). Remove tape holding fixture wires and make wiring connections. Push wire connections back into housing and reinstall access cover.

NOTE: For drywall or plaster ceiling installations, a ceiling trim conversion kit is available. Consult factory.



online
Quick Find
Click on **10**

LITHONIA LIGHTING®

Catalog Number	
Notes	Type

FEATURES & SPECIFICATIONS

INTENDED USE
For use in Non-IC applications with LP6, LP6H rough-in and IC applications with the LI6 and LI6F.

CONSTRUCTION
Aluminum one piece reflector.

Integral flange.

FINISH
Anodized reflectors available in clear specular and clear diffuse.

INSTALLATION
Socket to trim interface.

Retaining clips packed with reflector for installation on rough-in.

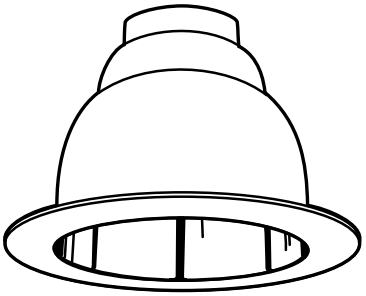
Maximum ceiling thickness 1-1/2".

LISTING
U.L. Listed to U.S. and Canadian safety standards.

Damp location listed.

6" Finishing Reflector

608



OPEN REFLECTOR
Vertical Lamp

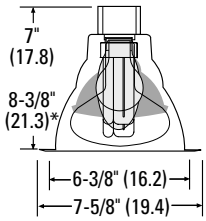
Specifications

Height: 7 (17.8); *With HID Safety Socket 8-3/8 (21.3)

Lamp Opening: 6-3/8 (16.2)

Diameter: 7-5/8 (19.4)

Trim heights when used with Non IC Rough-Ins.



All dimensions are inches (centimeters).

ORDERING INFORMATION

Choose the boldface catalog nomenclature that best suits your needs and write it on the appropriate line.

Example: **608A**

608

Series	Finish		Options	
608	**AZ**	Clear Specular	**TRW**	White flange with anodized trims
	A	Clear Diffuse		

Housing Compatibility

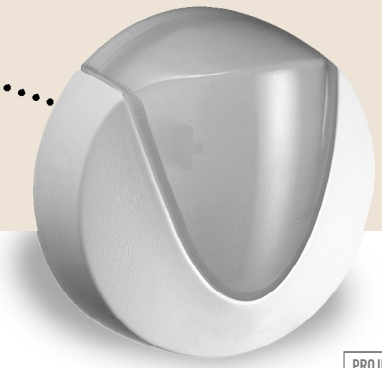
Housing and trim ordered separately.

Application	*Source*	*Max. wattage*	*Housing*
IC	Incandescent	100 PAR38	**LI6**
		90 BR40	**LI6**
		75 A19	**LI6**
	Compact Fluorescent	32 TRT	**LI6F**
Non-IC	Incandescent	150 PAR38	**LP6**
		120 BR40	**LP6**
		150 A21	**LP6**
	H.I.D.	100 MH	**LP6H**
		100 HPS	**LP6H**

LightSaver® LS-290C Photocell

Photocell for LightSaver LCD-203 and LCO-203 controllers

Mounts vertically or horizontally



Footcandle range from 3 - 6000

Architecturally attractive design

PROJECT

LOCATION/TYPE

Product Overview

Description

The Watt Stopper LightSaver LS-290C photocell provides the daylight data necessary for operation of the LCD-203 and LCO-203 daylighting control systems.

Operation

Utilizing a photodiode element, the LS-290C continuously measures ambient light levels. The sensor is positioned to "see" incoming daylight from either a window or skylight without seeing electrical light. Users select the applicable foot-candle range by a jumper beneath the front cover.

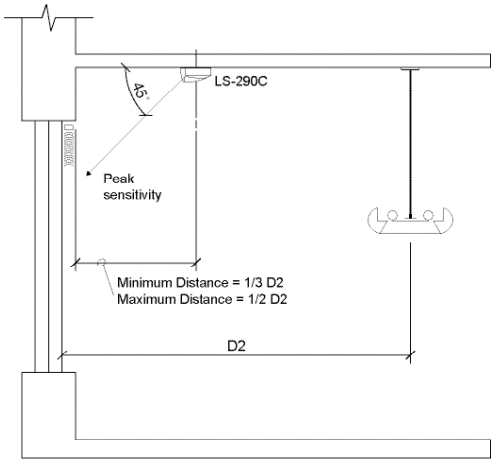
Specifications

- Three jumper-selectable footcandle ranges: 3-300 fc, 30-3000 fc, 60-6000 fc
- Protective hard plastic cover
- 3 conductor 22 AWG twisted cable equal to Belden 8443
- Maximum wire length is 250 feet (76.2m)
- Low voltage, Class 2 device
- Dimensions: 2" diameter x 1.2" deep (50.8mm diameter x 30.5mm deep)
- UL and CUL listed, five year warranty

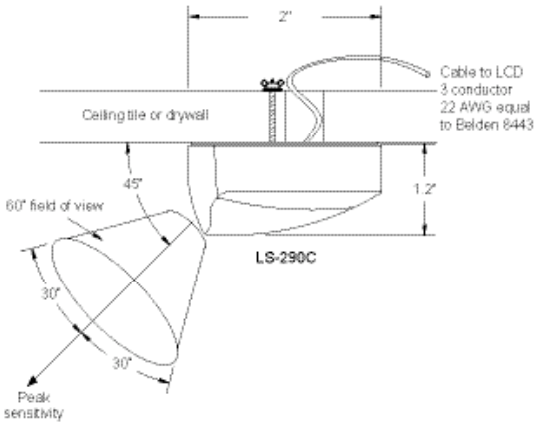
Ordering Information

Catalog No.	Description	Footcandle range
LS-290C	Photocell	3 - 6000 (32 - 64,000 lux)

Photocell Placement



Installation and Wiring



WattStopper
legrand
www.wattstopper.com
800.879.8585

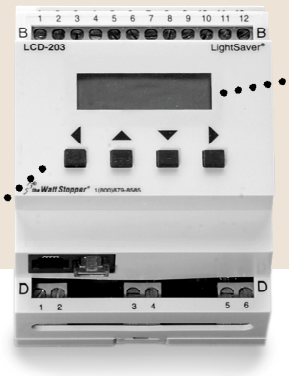
Pub. No. 9605

LightSaver® LCD-203 Dimming Controller

Low voltage automatic dimming control module

Three control channels with individually programmable settings

Pushbutton programming and automated setup



LCD display of photocell readings

Optional wall switch override for manual control

Open loop control

PROJECT

LOCATION/TYPE

Product Overview

Description

The Watt Stopper LightSaver LCD-203 daylighting controller provides automatic dimming control for fluorescent and HID fixtures. It is an open loop controller providing up to three zones of control from a single photocell. It also integrates with occupancy sensors and accommodates individual occupant overrides via an optional wall switch.

Operation

The LCD controller is part of a system that includes the LS-290C photocell and the BT-203 Power Pack. Each of the LCD controller's three channels has a 0-10 VDC output and connects to its own dedicated relay in the power pack. The photocell measures daylight and transmits the data to the controller. Each channel in the controller raises or lowers light levels, while the respective relays in the power pack switch lighting on or off. When daylight is adequate for a channel to fully dim, lights switch off after an adjustable time delay. This capability can be disabled for zones where lighting should remain on.

Multiple Channel Control

To achieve balanced dimming control, users group fixtures receiving comparable daylight levels into up to three control groups or zones. Zones closest to the daylight source are dimmed the most, while zones further away from the daylight source dim less. Unused channels may be disabled.

Applications

The LCD controller is suitable for a wide range of applications, such as open office areas, classrooms, retail stores, and any application with skylights. It is particularly suitable for applications that require independently dimming fixtures in adjoining zones. The load shedding capability can further reduce light levels during critical periods or during periods of reduced occupancy. If an occupancy sensor is used, its non-occupancy signal initiates dimming by the LCD controller prior to turning lighting off.

Features

- Simplified setup and calibration
- Optional dimming wall switch (LS-4C) provides manual dimming and ON/OFF control so users can adjust lighting as desired
- Seven individually adjustable parameters for each channel: setpoint, minimum output, maximum output, ramp rate, fade rate, cutoff time delay, load shed limit
- Menu-driven, pushbutton programming without special tools
- Automatic internal calculation for dimming requirements of individual channels for simplified setup
- DIN rail mounting
- California Title 24-2005 compliant

WattStopper
legrand®
www.wattstopper.com
800.879.8585

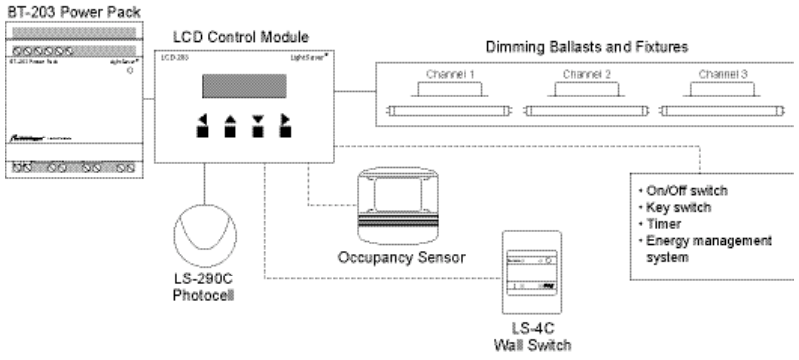
LCD Technical Information

Specifications

- Class 2 low voltage device
- Compatible with standard 0-10 volt dimming ballasts
- Supports up to 50 ballasts per dimming channel
- Photocell range from 3 - 6,000 footcandles (30 - 64,000 lux)
- Programmable dimming and fade rates from 5-60 seconds
- Selectable cut off delay from 0-20 minutes or can be disabled
- Programmable minimum output from 0-4VDC
- Programmable maximum output from 6-10VDC
- Load shed output from 0-10 VDC
- Setpoint range from 5-60 fc
- 24VDC supply voltage provided by BT-203
- Control output voltage to ballasts 0-10VDC
- Dimensions: 3.5" x 2.81" x 2.5" (89mm x 71mm x 64mm) LxWxD
- UL and CUL listed; five year warranty

System Layout & Wiring

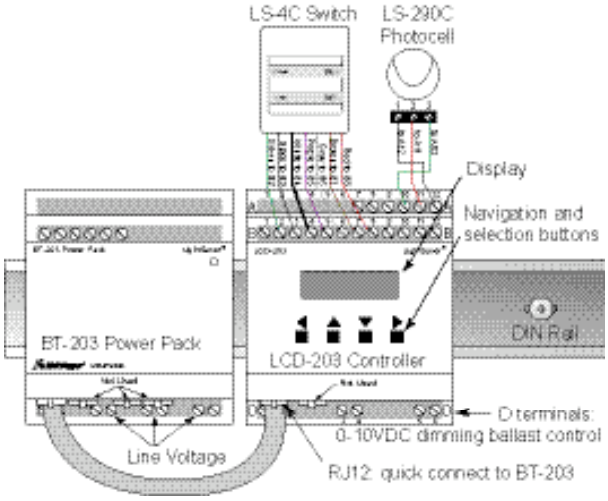
LCD System Layout



The LCD Dimming Control System consists of an LCD control module, an LS-290C photocell, and a BT-203 power pack.

Users may add options to the system to increase functionality, such as the LS-4C wall switch and occupancy sensors.

LCD-203 Wiring and Settings



Ordering Information

Catalog No.	Description	Voltage	Control Channels
LCD-203	Dimming control module	24 VDC	three
LS-290C	Photocell 3 - 6000 footcandle range		
BT-203	Power Pack		
Dimming control system options:			
Product group	Catalog No.	Description	
Switch	LS-4C	Wall Switch	
Enclosure	LS-E8	Screw-cover enclosure 8" x 8" x 4" (203.2mm x 203.2mm x 101.6mm)	
	LS-E12	Screw-cover enclosure 12" x 12" x 4" (304.8mm x 308.8mm x 101.6mm)	

LightSaver® LS-4C Wall Switch

Wall switch for LCD-203 or LCO-203 controllers

Automatic mode LED indicator

Manual mode LED indicator

Manual dimming or manual ON/OFF switching

Low voltage operation; Class 2 device

Includes color-coded leads

PROJECT

LOCATION/TYPE

Product Overview

Description

The Watt Stopper LightSaver LS-4C wall switch allows occupants to override automatic daylighting control. It provides manual dimming when used with LCD-203 controllers or ON/OFF switching when used with LCO-203 or LCD-203 controllers.

Operation

The LS-4C has four buttons and two LED indicators. One LED indicates the lights are being manually overridden and the other that they are dimming automatically. Pressing the I/O button puts the controller into manual mode and switches the lights on or off. Pressing and holding the up or down button increases or decreases light level. All three channels are dimmed or switched in unison. The Auto button switches the controller into automatic operation.

Specifications & Installation

Specifications

- Wiring is 7 conductor 18 AWG twisted cable (equal to Belden 8467)
- Maximum wire length from controller is 150 feet (45.72m)
- Dimensions: 4.88" x 3.13"x .38" (124mm x 80mm x 10mm) LxWxD
- UL and CUL listed, five year warranty

Ordering Information

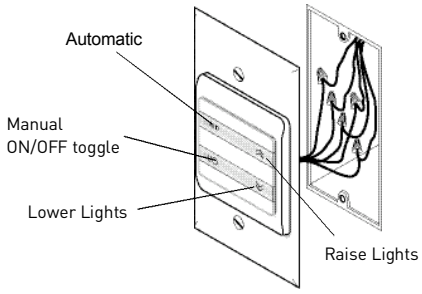
Catalog No.	Description
LS-4C	Wall Switch

Pub. No. 9704

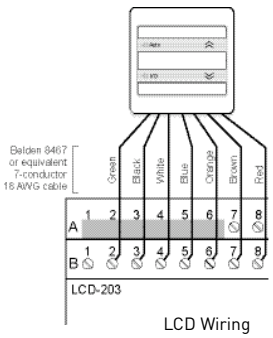
Applications

When an LS-4C is used with a controller and an occupancy sensor, manual overrides terminate when occupancy ends. When occupancy resumes, the controller automatically resumes automatic control. Up to four LS-4C switches may be wired to a single controller for multi-way switching. With customizable dimming and switching control, the LS4-C is ideal for applications such as classrooms, offices, and conference rooms.

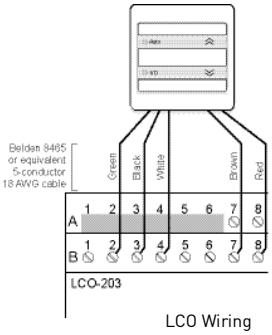
Installation & Controls



Wiring Diagram



LCD Wiring



LCO Wiring

WattStopper
legrand®
www.wattstopper.com
800.879.8585

DT-200 Dual Technology Sensor

Product Overview

Description

The Watt Stopper's DT-200 Dual Technology occupancy sensors combine passive infrared (PIR) and ultrasonic technologies into one unit to achieve precise coverage.

Operation

The DT-200 turns lighting on when both PIR and ultrasonic technologies detect occupancy. It can also work with a low voltage switch for manual-on operation. PIR technology senses the difference between infrared energy from a human body in motion and the background space. Ultrasonic technology uses the Doppler Principle and high frequency (40 kHz) ultrasound to sense motion within the space. Once lighting is on, detection by either technology holds lighting on. When no occupancy is detected for the length of the time delay, lighting turns off. The DT can also be set so that only one technology is needed to trigger lighting on or both technologies are needed to hold lighting on. The sensors are low voltage and utilize a Watt Stopper power pack.

SmartSet

Using SmartSet™ technology, the DT-200 sensors require no adjustment at installation. SmartSet monitors the controlled space to identify usage patterns. Using this information, it automatically adjusts the time delay and sensitivity for optimal performance and energy efficiency. The sensor assigns short delays (as low as 5 minutes) for times when the space is usually vacant, and longer delays (up to 30 minutes) for busier times.

Applications

The Watt Stopper dual technology sensors have the flexibility to work in a variety of applications. Mounted at 10 feet, the sensors can cover up to 2000 square feet of walking motion and 1000 square feet of desktop motion. The sensors are designed to control lighting in difficult applications, such as classrooms, where one technology alone could encounter false triggers. In addition to classrooms, the DT-200 works well in warehouses, large offices, open office spaces, and computer rooms.

Features

- Advanced control logic based on RISC microcontroller provides:
  - Detection Signature Processing eliminates false triggers and provides immunity to RFI and EMI
  - SmartSet automatically adjusts sensitivity and time delay settings to fit occupant patterns
  - Walk-through mode turns lights off 3 minutes after the area is initially occupied – ideal for brief visits such as mail delivery
  - Available with built-in light level sensor featuring simple, one-step setup
- Sensors work with low voltage momentary switches to provide manual control
- LEDs indicate occupancy detection
- 8 occupancy logic options give users the ability to customize control to meet application needs
- Available with isolated relay for integration with BAS or HVAC
- Swivel mounting bracket for convenient corner mounting to wall or ceiling

the Watt Stopper
www.wattstopper.com
800.879.8585

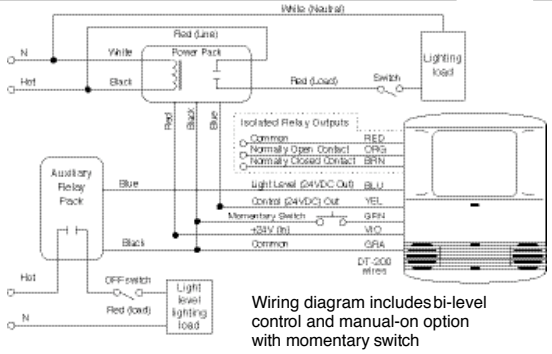
DT-200 Technical Information

Specifications

- 24 VDC/VAC and halfwave rectified AC
- 40 kHz frequency ultrasonic transmission
- Time delays: SmartSet (automatic), fixed (5, 10, 15, 20, or 30 minutes), walk-through, test-mode
- Sensitivity adjustment: SmartSet (automatic) or reduced sensitivity (for PIR sensitivity); ultrasonic sensitivity is variable with trimpot
- Built-in light level sensor (DT-200) – works from 2 to 200 footcandles
- Low voltage, momentary switch input for manual operation
- DT-200 contains an isolated relay with N/O and N/C outputs; rated for 1 Amp at 24 VDC/VAC
- 2000 sq ft of walking motion mounted at 10 ft; 1000 sq ft of desktop motion
- Units per power pack: DT-200: up to 2 (B), up to 3 (BZ); DT-205: up to 3 (B), up to 4 (BZ)
- Dimensions: 4.4" x 3.4" x 2" (110.3mm x 85.9mm x 49.6mm) LxWxD
- UL and CUL listed; Five year warranty

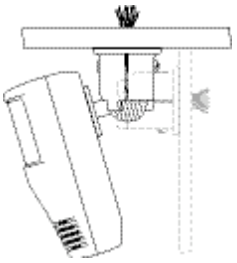
Wiring & Mounting

Wiring Diagram



Wiring diagram includes bi-level control and manual-on option with momentary switch

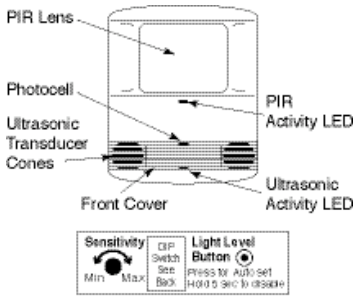
Mounting



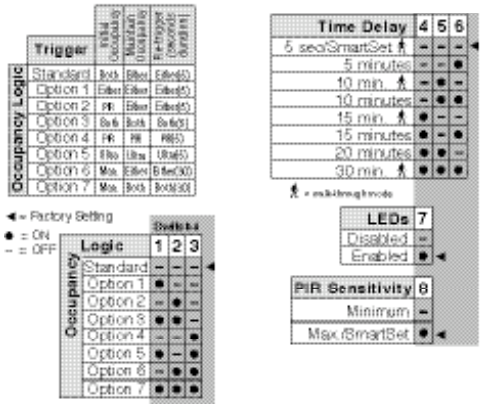
A swivel mounting bracket, attached to the sensor, allows the sensor to be angled for wall or ceiling mounting.

Grooves on the bracket help to achieve desired angle for coverage.

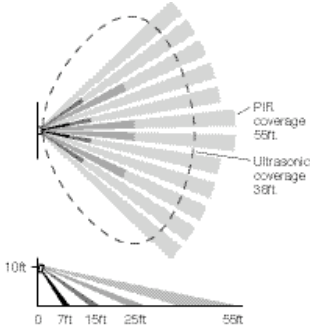
Product Controls



DIP Switch Settings



Coverage



Coverages shown are maximum and represent half-step walking motion. Under ideal conditions, with no barriers or obstacles, coverage for half-step walking motion can reach up to 2000 sq ft while coverage for typical desktop activity can reach up to 1000 sq ft.

Ordering Information

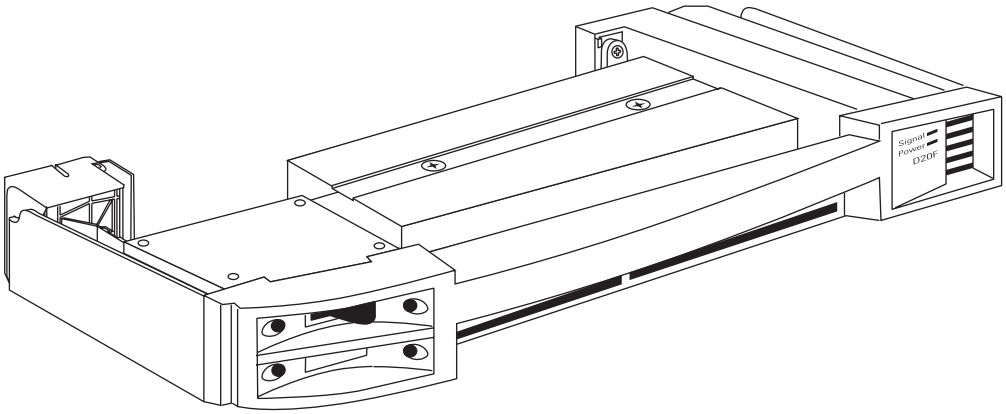
Catalog No.	Description	Voltage	Current	Coverage
DT-200	Dual technology sensor, full-featured; dense wide angle lens	24 VDC	43 mA	up to 2000 sq ft
DT-205	Dual technology sensor; dense wide angle lens	24 VDC	35 mA	up to 2000 sq ft

All units are white and use Watt Stopper power packs. Current consumption can be slightly higher when only one sensor per power pack is used.

The Watt Stopper®, Inc.
Pub. No. 6203

Fluorescent Dimmer Modules

Special Purpose Series



GENERAL INFORMATION

Sensor® Fluorescent modules provide operating power and dimming control to three-wire electronic dimmer ballasts for fluorescent fixtures.

APPLICATIONS
Three wire dimmed electronic fluorescent ballasts
High density architectural dimming
Themed retail and casino

FEATURES
Electronic trim-pot function matches ballast dimming range
Die-cast aluminum chassis
Tool-free installation and removal
Fully magnetic circuit breakers
100% duty cycle at full rating
Breakers will not derate over product life cycle
UL and cUL listed

ORDERING INFORMATION

Fluorescent Modules

Model#	Description
D15F	15A module - control and switched power circuits
D20F	20A module - control and switched power circuits

Compatible Systems

Model#	Description
Sensor Dimming Racks	
SR6	6 slot Installation Rack
SR12	12 slot Installation Rack
SR24	24 slot Installation Rack
SR48	48 slot Installation Rack
SR6AF	6 slot Advanced Features Installation Rack
SR12AF	12 slot Advanced Features Installation Rack
SR24AF	24 slot Advanced Features Installation Rack
SR48AF	48 slot Advanced Features Installation Rack
Sensor Touring Racks	
SP24	24 slot Touring Rack
SP36	36 slot Touring Rack
SP48	48 slot Touring Rack

SPECIFICATIONS

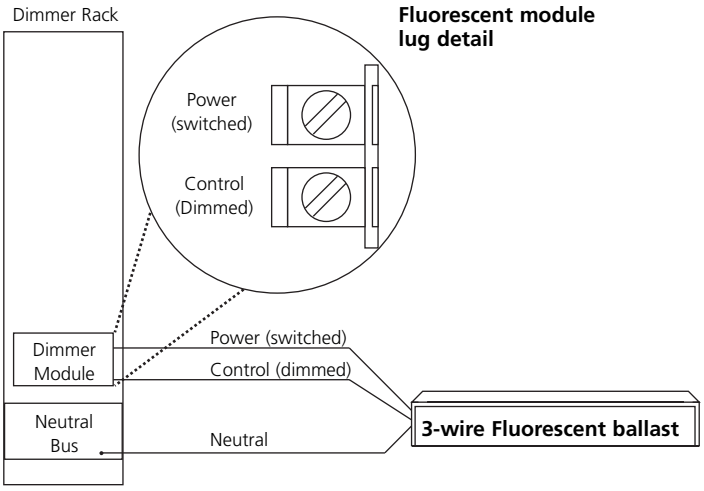
DIMMER MODULES Dimmers are UL and cUL listed for continuous duty at 100% of rated load
D15F – 1.8kW
D20F – 2.4kW

PHYSICAL Fluorescent modules are plug-in, and may be replaced without tools
Cast aluminum chassis, finished with textured epoxy paint
Keyed to prevent insertion in inappropriately rated rack positions

CIRCUIT BREAKERS Fully magnetic to eliminate nuisance tripping
20x inrush current rating
125%, 10-120 seconds, must- trip rating
Rated for 100% switching duty applications

SCR ASSEMBLY Sealed, patented assembly
Field replaceable with screwdriver
Two back-to-back SCRs per circuit
One Control and Output LED per circuit
4000V isolation between control and power components
Integral bonded heatsink
Integral temperature sensor
Built-in voltage and amperage sensors

DIMMER RANGE Uses Sensor™ Control Electronics Module's digital trim-pot function to set dimming range
Check fluorescent ballast for dimming range



PHYSICAL

Module Weights

Model	Weight		Shipping Weight	
	lbs	kgs	lbs	kgs
D15F/D20F	2.4	1.1	3.3	1.5

Maximum BTU Production per module

Model	BTUs	Watts	Efficiency
D15F/D20F	<10	<4	>99.0%

These values should be provided to a qualified HVAC design engineer, along with dimmer quantities, types and dimmer room dimensions, to calculate dimmer room air handling requirements.

Dimmer room HVAC systems must at all times maintain the specified ambient temperature **at the dimmer rack**. Dimming systems operating within 10°F of the upper or lower temperature limits must strictly follow installation and operation guidelines to operate reliably.

SCR Rating

Module	15/20AF
Single cycle peak surge current	625A
Half cycle peak surge current	1620A
Transient over voltage	600V

Electronic Theatre Controls
International • 3030 Laura Lane, P.O. Box 620979, Middleton, WI 53562-0979 • Tel: (+1) 608 831 4116 • Fax: (+1) 608 836 1736 • Toll free: 800 688 4116 • Toll free fax: 800 555 8912
Europe • 5 Victoria Industrial Estate, Victoria Road, London W3 6UU • Tel: +44 (0)20 8896 1000 • Fax: +44 (0)20 8896 2000
Asia • Room 605-606, Tower III Enterprise Square • 9 Sheung Yuet Road, Kowloon Bay • Kowloon, Hong Kong • Tel: (+852) 2799 1220 • Fax: (+852) 2799 9325
Web: www.etcconnect.com • **Email**: mail@etcconnect.com

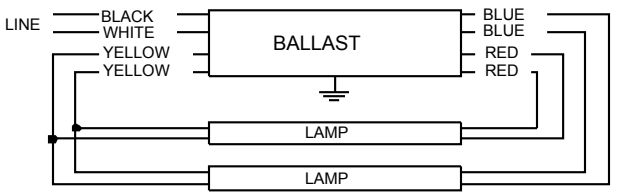
IOP-2S32-SC@277

Brand Name	OPTANIUM
Ballast Type	Electronic
Starting Method	Programmed Start
Lamp Connection	Series
Input Voltage	277
Input Frequency	50/60 HZ
Status	Active

Electrical Specifications

Lamp Type	Num. of Lamps	Rated Lamp Watts	Min. Start Temp (°F/C)	Input Current (Amps)	Input Power (ANSI Watts)	Ballast Factor	MAX THD %	Power Factor	MAX Lamp Current Crest Factor	B.E.F.
F17T8	1	17	0/-18	0.07	17	0.97	20	0.92	1.5	5.71
F17T8	2	17	0/-18	0.11	29	0.90	15	0.95	1.5	3.10
F25T8	1	25	0/-18	0.09	23	0.90	20	0.93	1.5	3.91
F25T8	2	25	0/-18	0.16	43	0.89	10	0.97	1.5	2.07
F32T8	1	32	0/-18	0.11	29	0.90	15	0.95	1.5	3.10
* F32T8	2	32	0/-18	0.20	55	0.88	10	0.98	1.5	1.60
F32T8/ES (30W)	1	30	60/16	0.10	27	0.90	15	0.94	1.5	3.33
F32T8/ES (30W)	2	30	60/16	0.19	52	0.88	10	0.98	1.5	1.69
F40T8	1	40	0/-18	0.13	36	0.90	15	0.97	1.5	2.50

Wiring Diagram



Diag. 21

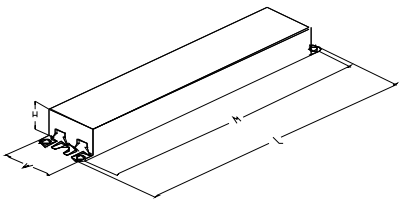
The wiring diagram that appears above is for the lamp type denoted by the asterisk (*)

Standard Lead Length (inches)

	in.	cm.
Black	25L	63.5
White	25L	63.5
Blue	26R	66
Red	26R	66
Yellow	36L	91.4
Gray	0	0
Violet	0	0

	in.	cm.
Yellow/Blue	0	0
Blue/White	0	0
Brown	0	0
Orange	0	0
Orange/Black	0	0
Black/White	0	0
Red/White		0

Enclosure



Enclosure Dimensions

OverAll (L)	Width (W)	Height (H)	Mounting (M)
9.50 "	1.7 "	1.18 "	8.90 "
9 1/2	1 7/10	1 9/50	8 9/10
24.1 cm	4.3 cm	3 cm	22.6 cm

Revised 01/09/2004

Data is based upon tests performed by Advance Transformer in a controlled environment and representative of relative performance. Actual performance can vary depending on operating conditions. Specifications are subject to change without notice. All specifications are nominal unless otherwise noted.

ADVANCE TRANSFORMER CO.
O'HARE INTERNATIONAL CENTER · 10275 WEST HIGGINS ROAD · ROSEMONT, IL 60018
Customer Support/Technical Service: Phone: 800-372-3331 · Fax: 630-307-3071
Corporate Offices: Phone: 800-322-2086

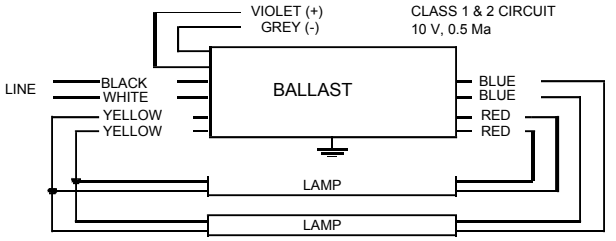
VZT-2S32

Brand Name	MARK VII 0-10V
Ballast Type	Electronic Dimming
Starting Method	Programmed Start
Lamp Connection	Series
Input Voltage	277
Input Frequency	50/60HZ
Status	Active

Electrical Specifications

Lamp Type	Num. of Lamps	Rated Lamp Watts	Min. Start Temp (°F/C)	Input Current (Amps)	Input Power (Watts) (min/max)	Ballast Factor (min/max)	MAX THD %	Power Factor	Lamp Current Crest Factor	B.E.F.
F25T8	2	25	50/10	0.18	13/49	0.05/0.94	10	0.99	1.6	1.92
* F32T8	2	32	50/10	0.24	14/64	0.05/0.88	10	0.99	1.6	1.38

Wiring Diagram



Diag. 56

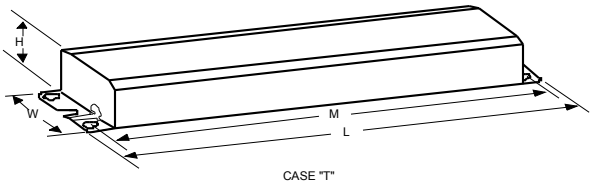
The wiring diagram that appears above is for the lamp type denoted by the asterisk (*)

Standard Lead Length (inches)

	in.	cm.
Black	22	
White	22	
Blue	26	
Red	26	
Yellow	36	
Gray	36	
Violet	36	

	in.	cm.
Yellow/Blue		
Blue/White		
Brown		
Orange		
Orange/Black		
Black/White		
Red/White		

Enclosure



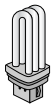
Enclosure Dimensions

OverAll (L)	Width (W)	Height (H)	Mounting (M)
9.50 "	2.375 "	1.5 "	8.90625 "
9 1/2	2 3/8	1 1/2	8 29/32
24.1 cm	6 cm	3.8 cm	22.6 cm

Revised 12/06/2002

ADVANCE TRANSFORMER CO.
O'HARE INTERNATIONAL CENTER · 10275 WEST HIGGINS ROAD · ROSEMONT, IL 60018
Customer Support/Technical Service: Phone: 800-372-3331 · Fax: 630-307-3071
Corporate Offices: Phone: 800-322-2086

Hi-lume Ballast Models

Lamp Type	Lamp Watts (length)	Lamps per ballast	Case Type	120 VOLTS Ballast Current (amps)	120 VOLTS **Hi-lume** Model Number [1]	277 VOLTS Ballast Current (amps)	277 VOLTS **Hi-lume** Model Number [1]
T4 triple-tube 4-pin  1/2" diameter	26W	1	A	.26	HL3-T426-120-1-S	.12	HL3-T426-277-1-S
	32W	1	A	.31	HL3-T432-120-1-S	.13	HL3-T432-277-1-S
T5-HO linear high output  5/8" diameter	24W (21.5")	1 2	C C	.26 .45	FDB-T524-120-1 FDB-T524-120-2	.13 .20	FDB-T524-277-1 FDB-T524-277-2
	39W (33.4")	1 2	C C	.38 .76	FDB-T539-120-1 FDB-T539-120-2	.17 .31	FDB-T539-277-1 FDB-T539-277-2
	54W (45.3")	1 2	C C	.58 1.1	FDB-T554-120-1 FDB-T554-120-2	.25 .45	FDB-T554-277-1 FDB-T554-277-2
T8 linear and U-bent  1" diameter	17W (24")	1 2 3	F F F	.19 .31 .43	FDB-2427-120-1 FDB-2427-120-2 FDB-2427-120-3	.08 .15 .20	FDB-2427-277-1 FDB-2427-277-2 FDB-2427-277-3
	25W (36")	1 2 3	F F F	.24 .43 .62	FDB-3627-120-1 FDB-3627-120-2 FDB-3627-120-3	.12 .19 .28	FDB-3627-277-1 FDB-3627-277-2 FDB-3627-277-3
	32W (48")	1 2 3	F F F	.30 .57 .82	FDB-4827-120-1 FDB-4827-120-2 FDB-4827-120-3	.14 .25 .35	FDB-4827-277-1 FDB-4827-277-2 FDB-4827-277-3
	40W (60")	1 2	F F	.36 .64	FDB-6027-120-1 FDB-6027-120-2	.16 .30	FDB-6027-277-1 FDB-6027-277-2
T12 linear HO (800ma)  1½" diameter	85W (72")	1	F	.75	FDB-7280-120-1	- -	- -
	95W (84")	1	F	.83	FDB-8480-120-1	- -	- -
	110W (96")	1	F	.88	FDB-9680-120-1	- -	- -

[1] Mounting studs standard for T4 ballasts. Delete suffix -S in the model number if mounting studs not needed.

Electronic Metal Halide Systems

QUICKTRONIC® MH

Professional Series

Lamp/Ballast Guide*

QTP 1x39MH/UNV
M130: PAR20, PAR30 T6 or TC

QTP 1x70MH/UNV
M139/M98: PAR30, PAR38 E17, T6 or TC

QTP 1x100MH/UNV
M90/M140: PAR38 or E17

* Ceramic metal halide lamps or approved equivalent

Key System Features

- Constant Power Regulation
- Universal Input Voltage
- High Power Factor
- Low Harmonic Distortion
- Small size and lightweight
- 90ºC Case Temperature
- UL, FCC
- QUICK 60+® warranty

Application Information

SYLVANIA QUICKTRONIC MH is ideally suited for:

- Display Lighting
- Down Lighting
- Landscape Lighting
- Retail
- Hospitality
- Institutional
- Commercial

SYLVANIA QUICKTRONIC MH features a state of the art electronic design to deliver performance levels unattainable with standard magnetic based lighting systems.

Small and efficient, QUICK-TRONIC MH operates silently and provides energy savings up to 15% compared to magnetic ballasts.

Installation is simplified by our single-piece ballast that replaces the ballast, capacitor, ignitor and mounting brackets of conventional systems. Two lightweight mounting styles allow for easy assembly in any fixture application.

Setting the standard for quality, QUICKTRONIC MH is also covered by our QUICK 60+® warranty, the first and most comprehensive system warranty in the industry.

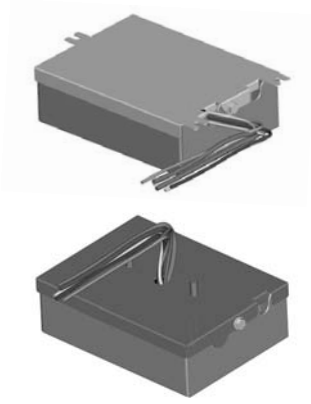
System Information

SYLVANIA QUICKTRONIC MH and SYLVANIA TRU-COLOR™ METALARC® CERAMIC lamps are perfectly matched to provide optimal system performance.

Our electronically controlled system delivers several advan-tages over conventional components, including improved lumen maintenance and extended photometric life.

The superior power regulation design produces consistently brilliant light output and color throughout the life of the lamp. This circuitry also provides constant light output during periods of varying supply voltage.

Sensing technology shuts down lamp power when an inoperative or malfunctioning lamp is present.



A complete OSRAM SYLVANIA System Performance Guide showing performance charac-teristics of lamps and ballasts is available upon request.

Enclosure Styles

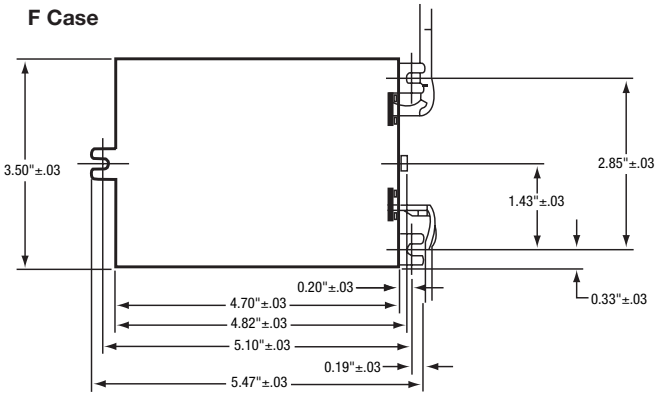
F = Feet Mount for track light fixtures (All leads exit side of ballast, as shown.)

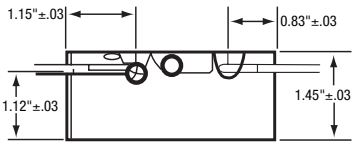
J = J-Box Mount with PEM studs for recessed downlight fixtures (All leads exit middle/bottom of ballast, as shown.)

Electronic Metal Halide Systems

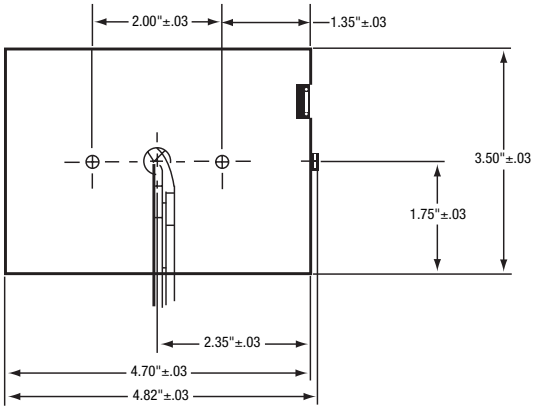
Item Number	Description	Input Voltage (VAC)	Lamp Type	Initial Rated Lumens	Ballast Factor (BF)	System Lumens	Input Wattage (W)	System Efficacy (lm/W)
51940 51941	QTP 1x39MH/UNV F QTP 1x39MH/UNV J	120-277	39W T6	3400	1.0	3400	45	76
51942 51943	QTP 1x70MH/UNV F QTP 1x70MH/UNV J	120-277	70W T6	6700	1.0	6700	80	84
51944 51945	QTP 1x100MH/UNV F QTP 1x100MH/UNV J	120-277	100W E17	9000	1.0	9000	112	80

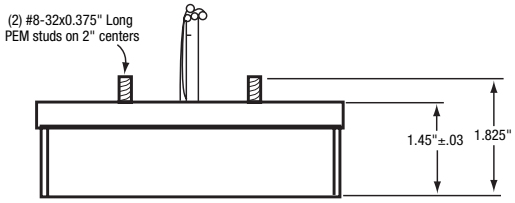
F Case





J Case

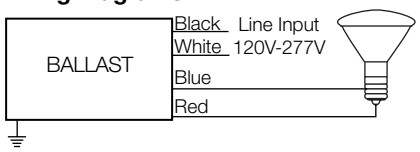




Wiring:
Lead Wires: 10"

Packaging:
Quantity: 10 pieces per carton
Weight: 13 lbs. per carton
(1.3 lbs each)

Wiring Diagrams



[1] See the SYLVANIA QUICKTRONIC Electronic Ballast Technology & Specification Guide (ECS-ELECTRONIC) for additional information.
[2] Typically 6 ft but varies by application, remote capability up to 15 ft. Bundling of lamp output wires from multiple ballasts is not recommended. Contact OSRAM SYLVANIA for details.

Item Number — 51942 QTP 1 x 70 MH / UNV F — Case Type (Mounting Style)
QUICKTRONIC PROFESSIONAL — Line Voltage
Number of Lamps (1) — Metal Halide
Primary Lamp Wattage

Performance Guide

Ballast shall be a metal halide SYLVANIA QUICKTRONIC® MH electronic ballast with universal input voltage.

Specifications[1,2]

Input Voltage: 108–305V
Input Frequency: 50/60 Hz
Lamp Frequency: 90Hz Square Wave
Power Factor: >97%
Low THD: <10%
Starting Temp.: –5°F/–20°C min.

UL Listed, Type 1, Outdoor
Suitable for recessed use
90°C Max. Case Temperature,
Thermally Protected
FCC 47CFR Part 18 Non-Consumer
Sound Rated A
ANSI C62.41 Cat. A Transient Protection
Remote mounting capability[2]
Lamp current crest factor < 1.5

Installation Notes

Use minimum 4kV pulse rated lamp holder.

Use minimum 4kV pulse rated or UL style 3561 wire for lamp connections.

Red lead must be connected to center terminal of lamp. Do not connect any lamp lead to neutral or ground.

System Life / Warranty

QUICKTRONIC products are covered by our QUICK 60+® warranty, a comprehensive lamp and ballast system warranty. For additional details, refer to our QUICK 60+ warranty bulletin.

Ordering Guide

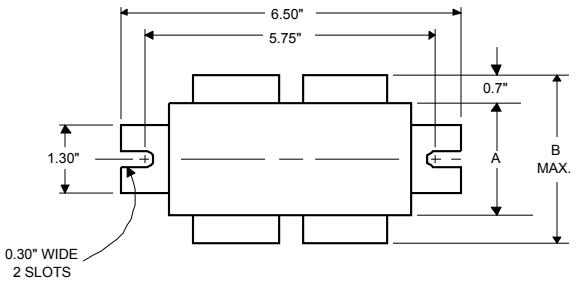
Specifications subject to change without notice.

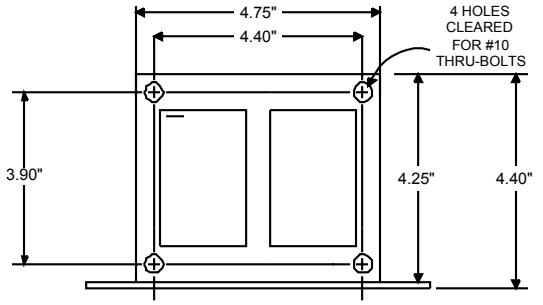
Metal Halide Lamp Ballast

Catalog Number 71A6031
For 400W M59
60 Hz CWA
Status: Active

DIMENSIONS AND DATA

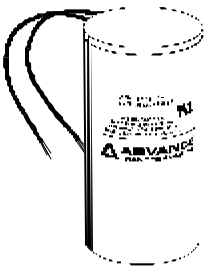
4 1/4 X 4 3/4 CORE - 2 COIL UNIT





INPUT VOLTS		277				
CIRCUIT TYPE	CWA					
POWER FACTOR (min)	90%					
REGULATION						
Line Volts	±10%					
Lamp Watts	±10%					
LINE CURRENT (Amps)						
Operating		1.75				
Open Circuit		1.30				
Starting		1.30				
UL TEMPERATURE RATINGS						
Insulation Class	H(180°C)					
Coil Temperature Code	1029	E				
MIN. AMBIENT STARTING TEMP.	-20°F or -30°C					
NOM. OPEN CIRCUIT VOLTAGE	300					
INPUT VOLTAGE AT LAMP DROPOUT		138				
INPUT WATTS	458					
RECOMMENDED FUSE (Amps)		5				
CORE and COIL						
Dimension (A)	2.00					
Dimension (B)	3.90					
Weight (lbs.)	11.5					
Lead Lengths	12"					
CAPACITOR REQUIREMENT						
Microfarads						
Volts (min.)	24.0					
Fault Current Withstand (amps)	400					
60 Hz TEST PROCEDURES (Refer to Advance Test Procedure for HID Ballasts - Form 1270)						
High Potential Test (Volts)						
1 minute	2000					
2 seconds	2500					
Open Circuit Voltage Test (Volts)	270-330					
Short-Circuit Current Test (Amps)						
Secondary Current						
Input Current	3.50-4.30	1.00 1.55	-	-	-	-

Capacitor: 7C240P40-R



Capacitance: 24
Dia/Oval Dim: 1.75
Height: 5.125
Temp Rating: 105°C

Wiring Diagram:

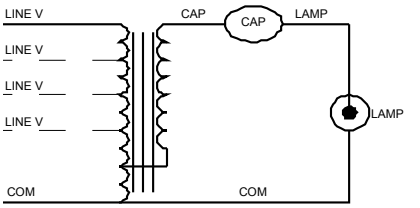


Fig. A

U.L. RECOGNIZED

Ignitor: NA

This ballast does not require the use of an ignitor.

Ordering Information

Order Suffix	Description
500D	Ballast with Dry Film Capacitor
510D	Ballast w/Welded Bracket & Dry Film Capacitor
600	Ballast Only, No Capacitor
610	Ballast with Welded Bracket, No Capacitor

Data is based upon tests performed by Advance Transformer in a controlled environment and representitive of relative performance. Actual performance can vary depending on operating conditions. Specifications are subject to change without notice.

ADVANCE TRANSFORMER CO.
O'HARE INTERNATIONAL CENTER · 10275 WEST HIGGINS ROAD · ROSEMONT, IL 60018
Customer Support/Technical Service: Phone: 800-372-3331 · Fax: 630-307-3071
Corporate Offices: Phone: 800-322-2086

03/31/99

OCTRON® AND OCTRON® CURVALUME® FLUORESCENT LAMPS

OCTRON® lamps are T8 fluorescent lamps designed to be operated on dedicated magnetic rapid start or electronic instant start, rapid start or programmed rapid start (also known as programmed start) ballasts. OCTRON lamps may be operated on electronic instant start ballasts with ballast factors ranging from .71 to 1.20 at the nominal ballast input voltage. For details on various lamp/ballast system combinations, please refer to the Systems Performance Guide in the "SYLVANIA QUICKTRONIC® Ballast Technology & Specification Guide".

OCTRON® 800, 800 XP™ and 800 XPS® Lamps

Nominal Wattage	Bulb	Nominal Length (in)	MOL (in)	Base	Product Number	Ordering Abbreviation	Pkg Qty	Avg Rated Life (hrs)	CCT (K)	CRI	Approx Lumens Initial @25°C/77°F	Approx Lumens Mean @25°C/77°F	Symbols & Footnotes
17	T8	24	23.78	Med Bipin	22137☼	**FO17/841/ECO**	30	20000	4100	82	1350	1240	1,2,6,8,20,21
					21907	**FO17/841/XP/ECO**	30	24000	4100	85	1375	1305	1,2,6,8,21,22,23
					22152☼	**FO17/841/XPS/ECO**	30	30000	4100	85	1400	1340	1,2,6,8,21,28,31
25	T8	36	35.78	Med Bipin	22138☼	**FO25/830/ECO**	30	20000	3000	82	2150	1975	1,2,6,8,20,21
					21910	**FO25/830/XP/ECO**	30	24000	3000	85	2175	2065	1,2,6,8,21,22,23
					22153☼	**FO25/830/XPS/ECO**	30	30000	3000	85	2200	2090	1,2,6,8,21,28,31
					22139☼	**FO25/835/ECO**	30	20000	3500	82	2150	1975	1,2,6,8,20,21
					21776	**FO25/835/XP/ECO**	30	24000	3500	85	2175	2065	1,2,6,8,21,22,23
					22154☼	**FO25/835/XPS/ECO**	30	30000	3500	85	2200	2090	1,2,6,8,21,28,31
					22140☼	**FO25/841/ECO**	30	20000	4100	82	2150	1975	1,2,6,8,20,21
					21774	**FO25/841/XP/ECO**	30	24000	4100	85	2175	2065	1,2,6,8,21,22,23
					22155☼	**FO25/841/XPS/ECO**	30	30000	4100	85	2200	2090	1,2,6,8,21,28,31
28	T8	48	47.78	Med Bipin	22177☼	**FO28/830/XP/SS/ECO**	30	18000	3000	82	2725	2560	1,2,6,22,23,29,30
					22178☼	**FO28/835/XP/SS/ECO**	30	18000	3500	82	2725	2560	1,2,6,22,23,29,30
					22179☼	**FO28/841/XP/SS/ECO**	30	18000	4100	82	2725	2560	1,2,6,22,23,29,30
30	T8	48	47.78	Med Bipin	22063	**FO30/830/XP/SS/ECO**	30	18000	3000	82	2850	2680	1,2,6,22,23,29,30
					22060	**FO30/835/XP/SS/ECO**	30	18000	3500	82	2850	2680	1,2,6,22,23,29,30
					22062	**FO30/841/XP/SS/ECO**	30	18000	4100	82	2850	2680	1,2,6,22,23,29,30
32	T8	48	47.78	Med Bipin	22039	**FO32/827/XP/ECO**	30	24000	2700	84	3000	2850	1,2,6,8,21,22,23
					21777	**FO32/830/ECO**	30	20000	3000	82	2950	2710	Ⓔ 1,2,6,8,20,21
					21759	**FO32/830/XP/ECO**	30	24000	3000	85	3000	2850	1,2,6,8,21,22,23
					21680	**FO32/830/XPS/ECO**	30	30000	3000	85	3100	2945	1,2,6,8,14,21,28,31
					21779	**FO32/835/ECO**	30	20000	3500	82	2950	2710	Ⓔ 1,2,6,8,20,21

DULUX® T/E 4-PIN ECOLOGIC® COMPACT FLUORESCENT LAMPS

Nominal Wattage	Bulb	MOL (in)	MOL (mm)	Base	Product Number	Ordering Abbreviation	NEMA Generic Designation	Pkg Qty	Avg Rated Life (hrs)	CCT (K)	CRI	Approx Lumens Initial @25°C/77°F	Approx Lumens Mean @25°C/77°F	Symbols & Footnotes
13	T4	4.2	106	GX24Q-1	20893	**CF13DT/E/835**	CFTR13W/GX24Q/835	50	12000	3500	82	900	774	1,2,3, 6,8,9,10
					20894	**CF13DT/E/841**	CFTR13W/GX24Q/841	50	12000	4100	82	900	774	1,2,3, 6,8,9,10
18	T4	4.6	116	GX24Q-2	20760	**CF18DT/E/827**	CFTR18W/GX24Q/827	50	12000	2700	82	1200	1032	1,2,3, 6,8,9,10
26	T4	5.2	124	GX24Q-3	20767	**CF26DT/E/827**	CFTR26W/GX24Q/827	50	12000	2700	82	1800	1548	1,2,3, 6,8,9,10
32	T4	5.8	147	GX24Q-3	20768	**CF32DT/E/827**	CFTR32W/GX24Q/827	50	12000	2700	82	2400	2064	1,2,3, 6,8,9,10,11

DULUX® T/E/IN AMALGAM, 4-PIN ECOLOGIC® COMPACT FLUORESCENT LAMPS

for Dimming and Electronic Ballast for High and Low Temp Applications

Nominal Wattage	Bulb	MOL (in)	MOL (mm)	Base	Product Number	Ordering Abbreviation	NEMA Generic Designation	Pkg Qty	Avg Rated Life (hrs)	CCT (K)	CRI	Approx Lumens Initial @25°C/77°F	Approx Lumens Mean @25°C/77°F	Symbols & Footnotes
18	T4	4.4	111	GX24Q-2	20875	**CF18DT/E/IN/827**	CFTR18W/GX24Q/827	50	12000	2700	82	1200	1032	1,2,3, 6,8,9,10,12
					20876	**CF18DT/E/IN/830**	CFTR18W/GX24Q/830	50	12000	3000	82	1200	1032	1,2,3, 6,8,9,10,12
					20877	**CF18DT/E/IN/835**	CFTR18W/GX24Q/835	50	12000	3500	82	1200	1032	1,2,3, 6,8,9,10,12
					20878	**CF18DT/E/IN/841**	CFTR18W/GX24Q/841	50	12000	4100	82	1200	1032	1,2,3, 6,8,9,10,12
26	T4	5.0	126	GX24Q-3	20879	**CF26DT/E/IN/827**	CFTR26W/GX24Q/827	50	12000	2700	82	1800	1548	1,2,3, 6,8,9,10,12
					20880	**CF26DT/E/IN/830**	CFTR26W/GX24Q/830	50	12000	3000	82	1800	1548	1,2,3, 6,8,9,10,12
					20881	**CF26DT/E/IN/835**	CFTR26W/GX24Q/835	50	12000	3500	82	1800	1548	1,2,3, 6,8,9,10,12
					20882	**CF26DT/E/IN/841**	CFTR26W/GX24Q/841	50	12000	4100	82	1800	1548	1,2,3, 6,8,9,10,12
32	T4	5.6	142	GX24Q-3	20883	**CF32DT/E/IN/827**	CFTR32W/GX24Q/827	50	12000	2700	82	2400	2064	1,2,3, 6,8,9,10,11,12
					20884	**CF32DT/E/IN/830**	CFTR32W/GX24Q/830	50	12000	3000	82	2400	2064	1,2,3, 6,8,9,10,11,12
					20885	**CF32DT/E/IN/835**	CFTR32W/GX24Q/835	50	12000	3500	82	2400	2064	1,2,3, 6,8,9,10,11,12
					20886	**CF32DT/E/IN/841**	CFTR32W/GX24Q/841	50	12000	4100	82	2400	2064	1,2,3, 6,8,9,10,11,12
42	T4	6.5	163	GX24Q-4	20887	**CF42DT/E/IN/827**	CFTR42W/GX24Q/827	50	12000	2700	82	3200	2752	1,2,3, 6,8,9,10,11,12
					20888	**CF42DT/E/IN/830**	CFTR42W/GX24Q/830	50	12000	3000	82	3200	2752	1,2,3, 6,8,9,10,11,12
					20871☼	**CF42DT/E/IN/835**	CFTR/42W/GX24Q/835	50	12000	3500	82	3200	2752	1,2,3, 6,8,9,10,11,12
					20890	**CF42DT/E/IN/841**	CFTR42W/GX24Q/841	50	12000	4100	82	3200	2752	1,2,3, 6,8,9,10,11,12
57	T4	7.76	197	GX24Q-5	20895	**CF57DT/E/IN/827**	CFTR57W/GX24Q/827	50	12000	2700	82	4300	3698	1,2,3, 6,8,9,10,11,12

METALARC® METAL HALIDE

STANDARD METALARC & METALARC PRO-TECH® (OPEN FIXTURE RATED)

Watts	Bulb	Base	Product Number	Ordering Abbreviation	ANSI Code	Pkg Qty	Lamp Finish	Operating Position	Fix Req	Avg Rated Life (hrs)	Approx Lumens (initial)	(mean)	CRI	CCT (K)	Symbols & Footnotes
400	BT28	E39 Mogul	64488	**M400/U/BT28**	M59/E	6	Clear	Universal	E	20000V 15000H	36000V 32000H	23500V 20500H	65	4000	2
			64489	**M400/C/U/BT28**	M59/E	6	Coated	Universal	E	20000V 15000H	36000V 32000H	22500V 20500H	70	3600	2
	BT37	E39 Mogul	64490	**M400/U**	M59/S	6	Clear	Universal	S	20000V 15000H	36000V 32000H	23500V 20500H	65	4000	20,26
			64492	**M400/C/U**	M59/S	6	Coated	Universal	S	20000V 15000H	36000V 32000H	22500V 20500H	70	3700	20,26
		EX39 Excl Mogul	64705	**MP400/BU-ONLY**	M59/O	6	Clear	BU ± 15°	O	20000	40000	26000	65	3600	11
			64706	**MP400/C/BU-ONLY**	M59/O	6	Coated	BU ± 15°	O	20000	38500	25000	70	3400	11
			64717	**MP400/BD-ONLY**	M59/O	6	Clear	BD ± 15°	O	20000	40000	26000	65	3600	11
1000	BT37	E39 Mogul	64469	**M1000/U/BT37**	M47/E	6	Clear	Universal	E	15000V 9000H	110000V 107800H	93500V 86300H	65	3800	2
	BT56	E39 Mogul	64468	**M1000/U**	M47/S	6	Clear	Universal	S	18000V 12000H	110000V 107800H	86000V 86300H	65	4000	20
			64470	**M1000/C/U**	M47/S	6	Coated	Universal	S	18000V 12000H	107000V 101600H	80000	70	3400	20
		EX39 Excl Mogul	64714	**MP1000/BU-ONLY**	M47/O	6	Clear	BU ± 15°	O	12000	107000	85500	65	3500	11
			64716	**MP1000/C/BU-ONLY**	M47/O	6	Coated	BU ± 15°	O	12000	100000	80000	70	3200	11
1500	BT56	E39 Mogul	64431	**M1500/BU-HOR**	M48/E	6	Clear	BU-HOR	E	3000	170000V 153000H	140000V 127400H	70	4000	2,28
			64432	**M1500/BD**	M48/E	6	Clear	BD ± 15°	E	3000	167000	140000	70	4000	2

METALARC BRITELINE

Double-Ended – Enclosed Fixtures Only

Watts	Bulb	Base	Product Number	Ordering Abbreviation	ANSI Code	Pkg Qty	Lamp Finish	Operating Position	Fix Req	Avg Rated Life (hrs)	Approx Lumens (initial)	(mean)	CRI	CCT (K)	Arc Length (in)	Symbols & Footnotes
1500	T7	RX7S RRSC	66619	**M1500T7/DE**	TBD	10	Clear	HOR ± 4°	F	3000	150000	127500	65	4200	6.71	29,30,31,32
	T8	Cer #8-10 Spade	66632	**M1500T8/DE**	M133/F	10	Clear	HOR ± 4°	F	6000	150000	120000	65	4200	4.3	29,31,32
2000	T8	RX7S RRSC	66627	**M2000T8/DE**	TBD	10	Clear	HOR ± 4°	F	3000	200000	170000	65	4000	7.09	29,30,31,32
	T9	Cer #8-10 Spade	66631	**M2000T9/DE**	M134/F	10	Clear	HOR ± 4°	F	3000	200000	170000	65	4200	4.25	29,31,32

METALARC SAFELINE®

Self-Extinguishing

Watts	Bulb	Base	Product Number	Ordering Abbreviation	ANSI Code	Pkg Qty	Lamp Finish	Operating Position	Fix Req	Avg Rated Life (hrs)	Approx Lumens (initial)	(mean)	CRI	CCT (K)	Symbols & Footnotes
400	BT37	E39 Mogul	64707	**MT400/BU-ONLY**	M59/S	6	Clear	BU ± 15°	S	20000	36000	22000	60	4500	20,33
			64709	**MT400/C/BU-ONLY**	M59/S	6	Coated	BU ± 15°	S	20000	35000	20600	65	4100	20,33


T (G8.5 base)


T (G12 base)


T (RSC base)


E17


BT28


PAR20


PAR30

METALARC® METAL HALIDE

METALARC POWERBALL® CERAMIC

High CRI, Pulse Start, UV Stop – Enclosed Fixtures Only

Watts	Bulb	Base	Product Number	Ordering Abbreviation	ANSI Code	Pkg Qty	Lamp Finish	Operating Position	Fix Req	Avg Rated Life (hrs)	Approx Lumens (initial)	Lumens (mean)	CRI	CCT (K)	Symbols & Footnotes
39	T4.5	G8.5	64791	**MC39TC/U/G8.5/830**	M130/E	12	Clear	Universal	E	9000	3300	2640	82	3000	CRI 1,2,3, 4,5
	T6	G12	64363	**MC39T6/U/G12/830**	M130/E	12	Clear	Universal	E	9000	3400	2720	82	3000	CRI 1,2,3, 4,5
70	T4.5	G8.5	64792	**MC70TC/U/G8.5/830**	M139/E	12	Clear	Universal	E	9000	6600	5280	83	3000	CRI 1,2,3, 4,5,6
	T6	G12	64361	**MC70T6/U/G12/830**	M139/E	12	Clear	Universal	E	9000	6700	5360	87	3000	CRI 1,2,3, 4,5,6
			64338	**MC70T6/U/G12/940**	M139/E	12	Clear	Universal	E	9000	5800	4640	90	4200	CRI 1,2,3, 4,5,6
		R7S RSC	64793	**MC70T6/DE/830**	M139/E	12	Clear	HOR ± 45°	E	12000	6600	5120	88	3000	CRI 1,2,4, 5,6,7
150	T6	G12	64337	**MC150T6/U/G12/940**	M102/E	12	Clear	Universal	E	9000	12700	10160	90	4200	CRI 1,2,3, 5,8
	T7.5	G12	64359	**MC150T7.5/G12/U/830**	M102/E	12	Clear	Universal	E	9000	14500	11600	89	3000	CRI 1,2,3, 5,8
		R7S RSC	64794	**MC150T7.5/DE/830**	M102/E	12	Clear	HOR ± 45°	E	12000	14800	11840	91	3000	CRI 1,2,5, 9

METALARC POWERBALL CERAMIC

High CRI, Pulse Start, UV Stop – Open or Enclosed Fixtures

Watts	Bulb	Base	Product Number	Ordering Abbreviation	ANSI Code	Pkg Qty	Lamp Finish	Operating Position	Fix Req	Avg Rated Life (hrs)	Approx Lumens (initial)	Lumens (mean)	CRI	CCT (K)	Symbols & Footnotes
70	E17	E26 Med	64739	**MCP70/U/MED/830**	M139/O	12	Clear	Universal	O	12000	5900	4700	88	3000	CRI 1,5,6, 10,11
			64740	**MCP70/C/U/MED/830**	M139/O	12	Coated	Universal	O	12000	5500	4400	88	3000	CRI 1,5,6, 10,11
100	E17	E26 Med	64743	**MCP100/U/MED/830**	M90/O	12	Clear	Universal	O	12000	9000	7200	85	3000	CRI 1,5,10, 11,12
			64744	**MCP100/C/U/MED/830**	M90/O	12	Coated	Universal	O	12000	8500	6900	85	3000	CRI 1,5,10, 11,12
150	E17	E26 Med	64741☼	**MCP150/U/MED/830**	M102/O	12	Clear	Universal	O	12000	13000	11000	89	3000	CRI 1,5,8, 10,11
			64742☼	**MCP150/C/U/MED/830**	M102/O	12	Coated	Universal	O	12000	12000	10000	89	3000	CRI 1,5,8, 10,11
250	BT28	EX39 Excl Mogul	64786☼	**MCP250/PS/BU-ONLY/940**	M153/O	6	Clear	BU ± 15°	O	15000	24000	19200	94	4200	CRI 1,10,11, 13
			64821☼	**MCP250/C/PS/BU-ONLY/940**	M153/O	6	Coated	BU ± 15°	O	15000	22500	18000	94	4000	CRI 1,10,11, 13

METALARC POWERBALL CERAMIC - PAR LAMPS

High CRI, Pulse Start, UV Stop, PAR Type – Open or Enclosed Fixtures

Watts	Bulb	Base	Product Number	Ordering Abbreviation	ANSI Code	Pkg Qty	Beam Type	Beam Angle	Operating Position	Fix Req	Avg Rated Life (hrs)	MBCP	Approx Lumens (initial)	CRI	CCT (K)	Symbols & Footnotes
39	PAR20	E26 Med	64747	**MCP39PAR20/U/830/SP**	M130/O	12	SP	10	Universal	O	9000	22000	2000	85	2900	CRI 1,3,4, 5,10,11
			64748	**MCP39PAR20/U/830/FL**	M130/O	12	FL	30	Universal	O	9000	5000	2000	85	2900	CRI 1,3,4, 5,10,11
	PAR30LN	E26 Med	64755	**MCP39PAR30LN/U/830/SP**	M130/O	6	SP	10	Universal	O	9000	39600	2300	85	2900	CRI 1,3,4, 5,10,11