LIGHTING EQUIPMENT SCHEDULE

TYPE	MANUF.	CATALOG #	LAMP(S)	BALLAST	INPUT WATTS	VOLTS	MOUNTING	DESCRIPTION
INDOOR FIXTURES								
F01	FOCAL POINT	FAVA-NS-1T5-1C-277-S-F-WH-4'	(1) 28W T5, 4100K, CRI=85, FP28/841/ECO	ADVANCE ICN-2S28-N	30 (PER FX)	277	CEILING SEMI-RECESSED	"AVENUE A" - NARROW APERTURE ASYMMETRIC WALL WASHER. SINGLE CIRCUIT, DRYWALL FLANGE, MATTE WHITE HOUSING, 4' NOMINAL LENGTH. STEEL CONSTRUCTION.
F02	FOCAL POINT	FAVB-FL-1T5-1C-277-D-F-WH-4'	(1) 28W T5, 4100K, CRI=85, FP28/841/ECO	DIMMING: LUTRON ECO-T528-277-2	30 (PER FX)	277	CEILING RECESSED	"AVENUE B" - RECESSED SLOT FIXTURE. DIFFUSE FLUSH LENS, SINGLE CIRCUIT, MATTE WHITE HOUSING. STEEL CONSTRUCTION.
F03	LIGHTOLIER	SU-F-L-S-T-SL	(1) 13W CFL, 4-PIN/2G7 BASE, 3500K, INCLUDED	IN-LINE ELECTRONIC	13	120	TABLE	"SURFSIDE" CFL PERSONAL TASK LIGHT. 20" ARM, SILVER FINISH, TABLE BASE
F04	FOCAL POINT	FTWS-PB-1-1-277-D-J12-TS-20'	(1) 28 W T5, 4100K, CRI=85, FP28/841/ECO	DIMMING: LUTRON ECO-T528-277-2	30 (PER FX)	277	CEILING SUSPENDED	"TWELVE" - SUSPENDED INDIRECT/DIRECT LUMINIRE. PARALLEL BLADE LOUVER, 24" CABLE SUSPENSION, INTEGRAL WATTSTOPPER OCCUPANCY SENSOR, TITANIUM SILVER FINISH, FACTORY 20' RUN
F05	LIGHTOLIER	PTS5-1-S-S-2-4	(1) 28W T5, 4100K, CRI=85, FP28/841/ECO	DIMMING: LUTRON ECO-T528-277-2	30 (PER FX)	277	CEILING RECESSED	"PTS5-1" - RECESSED PERIMETER WALL WASH. STRAIGHT BLADE ALUMINUM LOUVER, DIE-FORMED STEEL CONSTRUCTION.
F06	TECH LIGHTING	700-MO-SPT6-04-S	(1) 35W SOLUX MR16, 4100K, 17 DEGREE SPREAD	N/A	35	12	TRACK-MOUNTED	"SPOT" TRACK HEAD. COMPATIBLE WITH MONORAIL SYSTEM. 4.5" LENGTH. SATIN NICKEL FINISH. DESIGNER APPROVAL REQUIRED FOR LAMP SUBSTITUTION.
F06-A	TECH LIGHTING	700MOA-48+24-S	N/A	N/A	N/A	12	CEILING SURFACE	"MONORAIL" LOW-VOLTAGE STRAIGHT RAIL TRACK. 48" + 24" FOR TOTAL 72" OVERALL RUN. SATIN NICKEL FINISH WITH CLEAR INSULATOR. SEE CUTSHEETS FOR ADDITIONAL EQUIPMENT.
F07	LOUIS POULSEN	BAL-1/18W CF GX24q-2 - 277V - WHT	(1) 18W CFL, 4100K, CRI=82, PL-T 18W/841/4P/ ALTO	OSRAM QTP 1x18CF/UNV	20	277	CEILING SEMI-RECESSED	"BALLERUP" SEMI RECESSED DECORATIVE CFL DOWNLIGHT.
F08	LIGHTOLIER	48023ALU	(1) 28W T5, 4100K, CRI=85, FP28/841/ECO	ADVANCE ICN-2S28-N	30 (PER FX)	277	WALL MOUNTED	"SOLI" WALL-MOUNTED DECORATIVE T5 FIXTURE. METALLIC ALUMINUM FINISH, SEE DIFFUSER SPECIFICATION BELOW (ORDER SEPERATELY). ADA COMPLIANT
F09	ELLIPTIPAR	F101-T335-X-01-2-000	(1) 35W T5, 4100K, CRI=85, F35T5/841/ ALTO	ADVANCE ICN-2S28-N	38 (PER FX)	277	WALL CANTILEVER MOUNTED	"STYLE 102" WALL CANTILEVER-MOUNTED WALL WASH LUMINAIRE. BRIGHT ALUMINUM FLUTED HOUSING WITH SILVER END PLATES, 18" CANTILEVEL ARM. 5' LENGTH.
F10	COLOR KINETICS	101-000066-00	45 LEDs (15 RED, 15 GREEN, 15 BLUE)	N/A	3W	24V DC	COVE MOUNTED	"iCOLOR COVE QLX" COVE-MOUNTED RGB COLOR-CHANGING COVE FIXTURE. 120 DEGREE CANDLEPOWER DISTRIBUTION, ADJUSTABLE POSITION MOUNTING BRACKET.
F10-A	COLOR KINETICS	PDS-60ca 24V	N/A	N/A	N/A	277	REMOTE	277V AC - 24V DC LED POWER SUPPLY.
F10-B	COLOR KINETICS	101-000008	N/A	N/A	N/A	N/A	REMOTE	"COLORDIAL" DMX LED CONTROLLER.
F11	PHILIPS	OM4-1H-32 PLT-SQ-CS-120/277	(1) 32W CFL, 4100K, CRI=82, PL-T 32W/841/4P/ ALTO	OSRAM QTP 2X32CF/UNV BM	35 (PER FX)	277	CEILING RECESSED	"OMEGA REVELATION" 4-INCH SQUARE CFL DOWNLIGHT. CLEAR SPECULAR REFLECTOR.
F12	SCHMITZ	26237.06	(2) 28W T5, 4100K, CRI=85, FP28/841/ECO	ADVANCE ICN-2S28-N BF	60 (PER FX)	277	PENDANT	"TOOL" PENDANT FIXTURE. NO DOWNLIGHT. RIBBED ACRYLIC TUBE, SATIN NICKEL FINISH. ADJUSTABLE SUSPENSION CABLE.
OUTDOOR / SITE FIXTURES								
S01	BEGA	2007 P	(1) 35W T5, 3000K, CRI=85, F35T5/830/ALTO	ADVANCE ICN-2S28, BF	38.5 (PER FX)	277	WALL RECESSED	RECESSED LINEAR WALL FIXTURE. STAINLESS STEEL FINISH. RATED FOR WET LOCATION.
S02	BEGA	8642 P	(1) 24W T5HO, 3000K, CRI=85, F24T5/830/HO/ALTO	ADVANCE ICN-2S24, BF	26 (PER FX)	277	IN-GRADE RECESSED	IN-GRADE RECESSED FLODLIGHT. LINEAR FLUORESCENT. DRIVE OVER. RATED FOR WET LOCATION. STAINLESS STEEL FINISH.
S03	BEGA	8989 P	(1) 36W CFL, 3000K, CRI=82, PL-L 36W/830/4P	ADVANCE ICN-2S54, BF	46	277	POLE	LINEAR STAINLESS STEEL POLE-MOUNTED SITE FIXTURE. RATED FOR WET LOCATION.

VISUAL INDEX

avenue® a

FOCAL POINT®

FEATURES

Narrow aperture high performance T5/T5HO asymmetric wall wash.

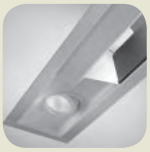
Precision micro-optic delivers shadow free illumination from the ceiling to the floor.

Features 2" narrow aperture for clean unobtrusive aesthetic.

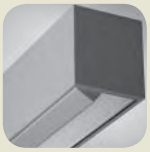
Drywall installation is available, which allows for both individual or continuous row mount capability.

Great solution for conference rooms, highlighting artwork, corridors, white board or any application that requires high levels of vertical illumination.

companion luminaire



mr16



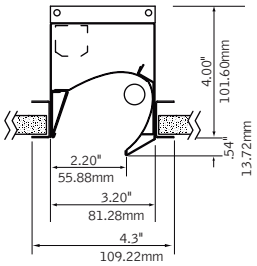
linear

recessed wall mount

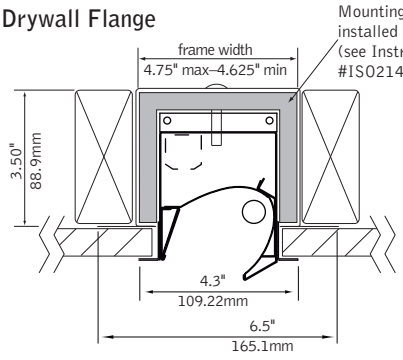
November 2007

DIMENSIONAL DATA

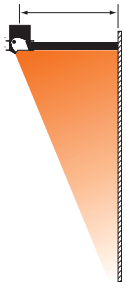
Grid Mount



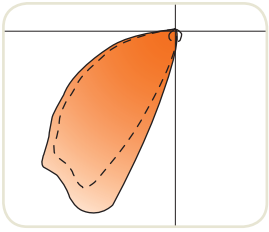
Drywall Flange



24-30" Recommended Distance from Wall



PERFORMANCE



1–Lamp T5HO
57% Efficiency
1933 cd @ 25°

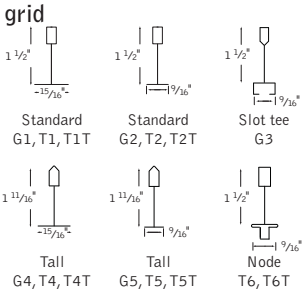
See **Photometric** section for additional performance data.

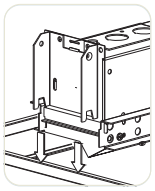
fixture type:

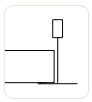
project name:

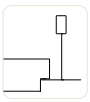
DETAILS

grid









drywall

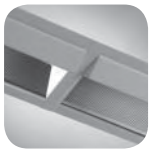
2' unit (cutout dimension: 3.5" x 23.6")

3' unit (cutout dimension: 3.5" x 35.6")

4' unit (cutout dimension: 3.5" x 47.6")

5' unit (cutout dimension: 3.5" x 59.6")

Drywall flange version provided with mounting yoke.



row mount detail

SPECIFICATIONS

construction

One-piece 20 Ga. steel housing.
Grid luminaires include 20 Ga. steel, .5" wide universal flange rail.

Drywall flange option is provided with 20 Ga. steel, .5" wide flange kit and 20 Ga. galvanized steel mounting yoke.

2' unit weight:	5 lbs.
3' unit weight:	6 lbs.
4' unit weight:	7 lbs.
5' unit weight:	8 lbs.

optic

.020" specular aluminum upper reflector and .020" semi-specular lower reflector.
24 Ga. perforated matte black diffuser with 24% opening.

please note:

radial cut-off louver FAVA-RL or the clear lens FAVA-CL cannot be field installed on the non-shielded profile FAVA-NS.

electrical

Luminaires are individually wired for specified circuits.
Thru-wiring not available.
Electronic ballasts are thermally protected and have a Class "P" rating.
Optional DALI and other dimming ballasts available.
Consult factory for dimming specifications and availability.
UL and cUL listed.

emergency

Emergency battery packs provide 90 minutes of illumination.
Initial lumen output for lamp types are as follows:

T5 Lamp:	Up to 550 lumens
T5HO Lamps:	Up to 825 lumens

Battery pack requires unswitched hot from same branch circuit as AC ballast.

finish

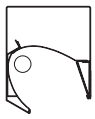
Polyester powder coat applied over a 5-stage pre-treatment.
Standard luminaire housing finished in Matte Satin White or Matte Black.
Perforated diffuser always finished in Matte Black.

ORDERING

luminaire series		FAVA
Avenue A	FAVA	
shielding		NS
No Shielding, Open Optic (Radial cut-off louver FAVA-RL or the clear lens FAVA-CL cannot be field installed on the non-shielded profile FAVA-NS)	NS	
lamping		1T5
One Lamp T5	1T5	
One Lamp T5HO	1T5HO	
circuits		1C
Single Circuit	1C	
voltage		277
120 Volt	120	
277 Volt	277	
347 Volt (Consult factory for availability)	347	
ballast		S
Electronic Program Start <10% THD	S	
Electronic Dimming Ballast	D	
ceiling configurations (For mounting configurations, see Reference section)		G1
Drywall Flange (Consult factory for custom variations)	F	
Std. 15/16" Lay-in	G1	
Std. 15/16" Tegular	T1	
Std. 15/16" Tegular, against Tee	T1T	
Std. 9/16" Lay-in	G2	
Std. 9/16" Tegular	T2	
Std. 9/16" Tegular, against Tee	T2T	
9/16" Slot-tee Tegular	G3	
Tall 15/16" Lay-in	G4	
Tall 15/16" Tegular	T4	
Tall 15/16" Tegular, against Tee	T4T	
Tall 9/16" Lay-in	G5	
Tall 9/16" Tegular	T5	
Tall 9/16" Tegular, against Tee	T5T	
Node 9/16" Tegular	T6	
Node 9/16" Tegular, against Tee	T6T	
factory options		-
Chicago Plenum	CP	
Emergency Circuit	EC	
Emergency Battery Pack (3' & 4' Luminaires Only)	EM	
Seismic Brackets	EQ	
HLR/GLR Fuse	FU	
Include 3000K Lamp	L830	
Include 3500K Lamp	L835	
Include 4100K Lamp	L841	
finish		WH
Matte White Housing	WH	
Titanium Silver	TS	
Matte Black Housing (Perforated diffuser always painted black)	BK	
luminaire length		4'
2' Nominal Housing	2'	
3' Nominal Housing	3'	
4' Nominal Housing	4'	
5' Nominal Housing (Dimming not available with 5' lamps) (For continuous row mount in drywall ceiling, specify luminaire run length, ie 24')	5'	

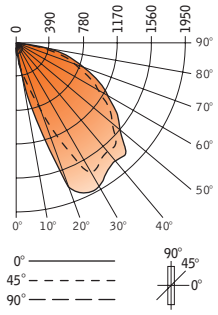
Focal Point L.L.C. 4201 South Pulaski Rd, Chicago, Illinois 60632 | T: 773.247.9494 | F: 773.247.8484 | info@focalpointlights.com | www.focalpointlights.com

avenue® a



Filename: FAVANS1T5H.IES
Catalog #: FAVA-NS-1T5HO-1C-120-S-G-WH-4'
Efficiency: 57%
Test #: 12355.0

CANDLEPOWER DISTRIBUTION



Vertical Angle	Horizontal Angle 0°	22.5°	45°	67.5°	90°	Zonal Lumens
0°	108	108	108	108	108	
5°	276	256	214	154	101	13
15°	919	771	499	291	102	85
25°	1933	1873	1300	415	101	279
35°	1832	1799	1695	707	96	408
45°	1806	1775	1647	1296	88	610
55°	1434	1416	1329	1108	74	580
65°	1072	1052	962	811	56	473
75°	655	631	568	458	39	294
85°	317	294	224	129	14	119
90°	183	165	112	40	2	
95°	0	0	0	0	0	0
105°	0	0	0	0	0	0
115°	0	0	0	0	0	0
125°	0	0	0	0	0	0
135°	0	0	0	0	0	0
145°	0	0	0	0	0	0
155°	0	0	0	0	0	0
165°	0	0	0	0	0	0
175°	0	0	0	0	0	0
180°	0	0	0	0	0	

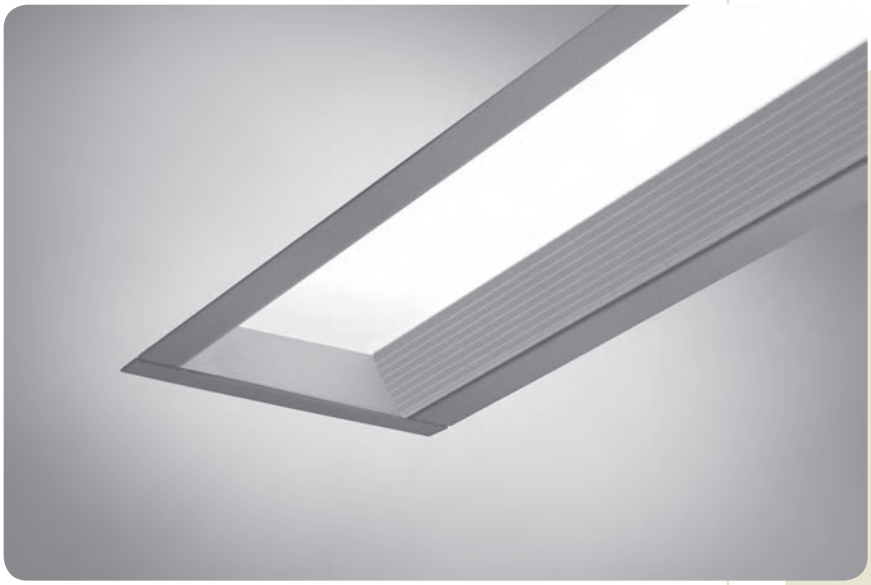
LUMEN SUMMARY

	Zone	Lumens	% Lamp	% Fixt
	0°-30°	376	7.5	13.2
	0°-40°	784	15.7	27.4
	0°-60°	1975	39.5	69.0
	0°-90°	2861	57.2	100.0
Total Luminaire	0°-180°	2861	57.2	100.0

Go to www.focalpointlights.com for additional photometric data.

avenue® b

FOCAL POINT®



FEATURES

Narrow 3" slot T5 fluorescent with opaque satin lens.

Shielding options include corrugated, solid regressed trim, concave louver as well as flush lens.

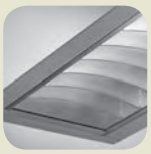
Drywall installation is available, which allows for both individual or continuous row mount capability.

Avenue® B is a great solution for general illumination in a narrow aperture.

shielding options

corrugated regress trim

solid regress trim

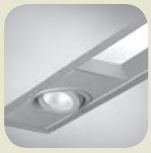


concave louver

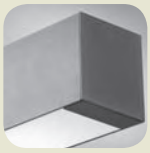
flush lens

microglow™ lens

companion luminaire



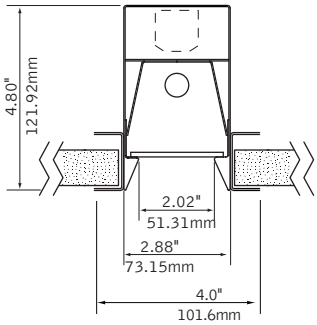
mr16



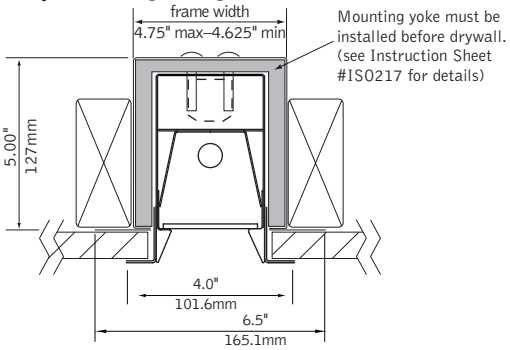
linear

DIMENSIONAL DATA

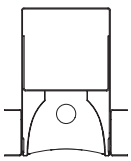
Grid Mount (Regress Trim Shown)



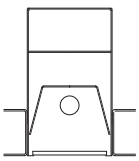
Drywall Flange (Regress Trim Shown)



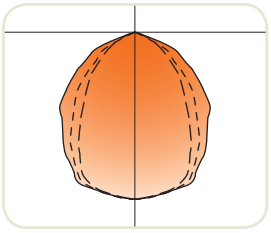
Louver



Flush Lens



PERFORMANCE



1–Lamp T5
62% Efficiency
1466 cd @ 0°

See **Photometric** section for additional performance data.

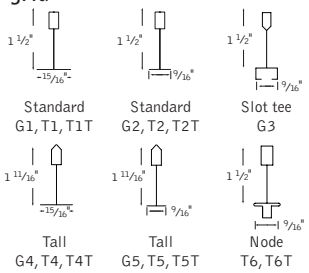
january 2008

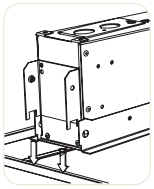
fixture type:

project name:

DETAILS

grid





drywall

2' unit (cutout dimension: 3.5" x 23.6")

3' unit (cutout dimension: 3.5" x 35.6")

4' unit (cutout dimension: 3.5" x 47.6")

5' unit (cutout dimension: 3.5" x 59.6")

Drywall flange version provided with mounting yoke.

SPECIFICATIONS

construction

One-piece 20 Ga. steel housing.

Corrugated and solid regress trim constructed of 6063-T5 extruded aluminum finished in Matte Satin White.

Grid luminaires include 20 Ga. steel, .5" wide flange rail finished in Matte Satin White.

Drywall flange option is provided with 20 Ga. steel, .5" wide flange kit and 20 Ga. galvanized steel mounting yoke.

2' unit weight:	5 lbs.
3' unit weight:	6 lbs.
4' unit weight:	7 lbs.
5' unit weight:	8 lbs.

optic

22 Ga. steel reflectors finished in High Reflectance White powder coat.

Frosted Acrylic lens diffuser .118" thick.

Clear Acrylic MicroGlow™ diffuser .125" thick with miniature prismatic pattern.

Concave parabolic louver: 1"H x 1" frequency fabricated of low iridescent, semi-specular premium grade aluminum.

Louver can be specified with matte white finish.

electrical

Luminaires are individually wired for specified circuits.

Thru-wiring not available.

Electronic ballasts are thermally protected and have a Class "P" rating.

Optional DALI and other dimming ballasts available.

Consult factory for dimming specifications and availability.

UL and cUL listed.

emergency

Emergency battery packs provide 90 minutes of illumination.

Initial lumen output for lamp types are as follows:

T5 Lamp:	Up to 550 lumens
T5HO Lamps:	Up to 825 lumens

Battery pack requires unswitched hot from same branch circuit as AC ballast.

finish

Polyester powder coat applied over a 5-stage pre–treatment.

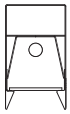
Standard luminaire housing finished in Matte Satin White.

ORDERING

luminaire series		FAVB
Avenue B	FAVB	
shielding		NS
Corrugated Regressed Trim Frst.Lns	CR	
Solid Regressed Trim Frosted Lens	SR	
Concave Parabolic Louver	PL	
Flush Frosted Lens	FL	
Corrugated Regressed Trim with MicroGlow™ Lens	CRM	
Solid Regressed Trim MicroGlow™ Lens	SRM	
Flush MicroGlow™ Lens	FLM	
White Concave Parabolic Louver	PW	
lamping		1T5
One Lamp T5	1T5	
One Lamp T5HO	1T5HO	
circuits		1C
Single Circuit	1C	
voltage		277
120 Volt	120	
277 Volt	277	
347 Volt (Consult factory for availability)	347	
ballast		S
Electronic Program Start <10% THD	S	
Electronic Dimming Ballast	D	
ceiling configurations (For mounting configurations, see Reference section)		G1
Drywall Flange (Consult factory for custom variations)	F	
Std. 15/16" Lay-in	G1	
Std. 15/16" Tegular	T1	
Std. 15/16" Tegular, against Tee	T1T	
Std. 9/16" Lay-in	G2	
Std. 9/16" Tegular	T2	
Std. 9/16" Tegular, against Tee	T2T	
9/16" Slot-tee Tegular	G3	
Tall 15/16" Lay-in	G4	
Tall 15/16" Tegular	T4	
Tall 15/16" Tegular, against Tee	T4T	
Tall 9/16" Lay-in	G5	
Tall 9/16" Tegular	T5	
Tall 9/16" Tegular, against Tee	T5T	
Node 9/16" Tegular	T6	
Node 9/16" Tegular, against Tee	T6T	
factory options		-
Chicago Plenum	CP	
Emergency Circuit	EC	
Emergency Battery Pack (3' & 4' Luminaires Only)	EM	
Seismic Brackets	EQ	
HLR/GLR Fuse	FU	
Include 3000K Lamp	L830	
Include 3500K Lamp	L835	
Include 4100K Lamp	L841	
finish		WH
Matte White Housing	WH	
luminaire length		WH
2' Nominal Housing	2'	
3' Nominal Housing	3'	
4' Nominal Housing	4'	
5' Nominal Housing (Dimming not available with 5' lamps) (For continuous row mount in drywall ceiling, specify luminaire run length, ie 24')	5'	

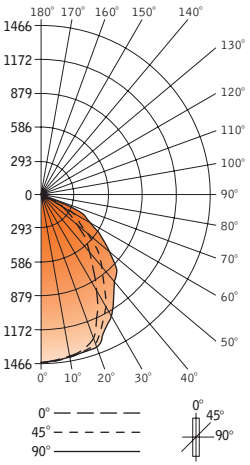
Focal Point L.L.C. 4201 South Pulaski Rd, Chicago, Illinois 60632 | T: 773.247.9494 | F: 773.247.8484 | info@focalpointlights.com | www.focalpointlights.com

regress with lens
avenue® b



Filename: FAVBSR1T5HO.IES
Catalog #: FAVB-SR-1T5HO-1C-120-S-G1-WH-4'
Efficiency: 62%
Test #: 12914.0

CANDLEPOWER DISTRIBUTION



Vertical Angle	0°	22.5°	45°	67.5°	90°	Zonal Lumens
0°	1466	1466	1466	1466	1466	
5°	1457	1457	1456	1456	1456	139
15°	1432	1428	1417	1399	1393	401
25°	1311	1299	1254	1187	1150	575
35°	1102	1073	958	837	793	599
45°	934	866	701	586	553	565
55°	649	578	426	357	335	416
65°	404	328	232	187	174	257
75°	184	133	77	60	58	103
85°	39	21	19	18	17	24
90°	0	0	0	0	0	
95°	0	0	0	0	0	0
105°	0	0	0	0	0	0
115°	0	0	0	0	0	0
125°	0	0	0	0	0	0
135°	0	0	0	0	0	0
145°	0	0	0	0	0	0
155°	0	0	0	0	0	0
165°	0	0	0	0	0	0
175°	0	0	0	0	0	0
180°	0	0	0	0	0	

Spacing 1.2
Criterion: 1.1

LUMEN SUMMARY

	Zone	Lumens	% Lamp	% Fixt
	0°-30°	1115	22.3	36.2
	0°-40°	1714	34.3	55.7
	0°-60°	2695	53.9	87.5
	0°-90°	3078	61.6	100.0
Total Luminaire	0°-180°	3078	62	100.0

LUMINANCE DATA (CD/M²)

Vertical Angle	0°	45°	90°
45°	16467	12359	9750
55°	14106	9259	7281
65°	11918	6844	5133
75°	8863	3709	2794
85°	5579	2718	2432

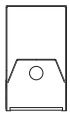
CO-EFFICIENTS OF UTILIZATION

Floor		80			70			50	30	10	00
Ceiling								20			
Wall	70	50	30	10	70	50	10	50	10	10	00
RCR 0	73	73	73	73	72	72	72	68	65	63	62
1	68	66	64	62	67	65	61	62	59	60	57	58	56	54
2	63	59	56	53	62	58	52	56	51	54	50	52	49	48
3	59	53	49	46	57	52	45	51	45	49	44	48	43	42
4	54	48	43	40	59	47	40	46	39	45	39	43	38	37
5	50	43	38	35	49	42	34	41	34	40	34	39	33	32
6	46	39	34	31	45	39	30	37	30	36	30	36	30	29
7	43	35	31	27	42	35	27	34	27	33	27	32	26	25
8	40	32	27	24	39	32	24	31	24	30	23	29	23	22
9	37	29	24	21	36	29	21	28	21	27	21	27	20	19
10	34	26	22	19	33	26	19	25	18	25	18	24	18	17

Numbers indicate percentage values of reflectivity.

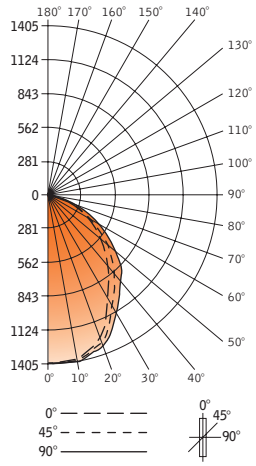
Go to www.focalpointlights.com for additional photometric data.

flush lens
avenue® b



Filename: FAVBFL1T5.IES
Catalog #: FAVB-FL-1T5HO-1C-120-S-G1-WH-4'
Efficiency: 65%
Test #: 13734.0

CANDLEPOWER DISTRIBUTION



Vertical Angle	0°	22.5°	45°	67.5°	90°	Zonal Lumens
0°	1397	1397	1397	197	1397	
5°	1395	1395	1394	1391	1392	133
15°	1361	1357	1342	1329	1324	381
25°	1242	1228	1192	1159	1145	552
35°	1029	1005	950	903	885	599
45°	8446	812	747	700	684	586
55°	580	550	501	471	464	458
65°	356	338	310	297	293	315
75°	165	158	150	144	142	160
85°	35	37	38	38	40	41
90°	0	0	0	0	0	
95°	0	0	0	0	0	0
105°	0	0	0	0	0	0
115°	0	0	0	0	0	0
125°	0	0	0	0	0	0
135°	0	0	0	0	0	0
145°	0	0	0	0	0	0
155°	0	0	0	0	0	0
165°	0	0	0	0	0	0
175°	0	0	0	0	0	0
180°	0	0	0	0	0	

Spacing 1.2
Criterion: 1.0

LUMEN SUMMARY

	Zone	Lumens	% Lamp	% Fixt
	0°-30°	1066	21.3	33.0
	0°-40°	1665	33.3	51.6
	0°-60°	2709	54.2	84.0
	0°-90°	3225	64.5	100.0
Total Luminaire	0°-180°	3225	64.5	100.0

LUMINANCE DATA (CD/M²)

Vertical Angle	0°	45°	90°
45°	19577	17286	15828
55°	16546	14293	13237
65°	13784	12003	11344
75°	10432	9483	8977
85°	6571	7134	7510

CO-EFFICIENTS OF UTILIZATION

Floor		80			70			50	30	10	00
Ceiling								20			
Wall	70	50	30	10	70	50	10	50	10	10	00
RCR 0	77	77	77	77	75	75	75	72	72	69	69	66	66	65
1	71	69	66	64	70	67	63	64	61	62	59	60	57	56
2	66	61	57	54	64	60	53	58	52	56	51	54	50	49
3	61	55	50	46	59	54	46	52	45	50	44	49	44	42
4	56	49	44	40	55	48	40	47	39	45	39	44	38	37
5	51	44	38	34	50	43	34	42	34	41	34	39	33	32
6	48	40	34	30	46	39	30	38	30	37	30	36	29	28
7	44	36	30	27	43	35	27	34	26	33	26	32	26	25
8	43	32	27	23	40	32	23	31	23	30	23	29	23	22
9	37	29	24	20	37	29	20	28	20	27	20	26	20	19
10	35	26	21	18	34	26	18	25	18	25	18	24	18	17

Numbers indicate percentage values of reflectivity.

Go to www.focalpointlights.com for additional photometric data.

Surfside is a sleek, contemporary adjustable arm task light with two arm sizes and two distinctively different light sources. Available in either 13 watt compact fluorescent or state of the art LED versions, Surfside will provide the right amount of light where needed in the task area. Surfside is available in black or silver with 10 solid or transparent colored shade options. The shade assemblies are easily interchangeable to suit user preference.

SURFSIDE

Ordering Information

SU	F	—	L	S	T	—	SL
Series	**Lamps**		**Arm**	**Color**	**Mounting**		**Options**

SU = Surfside

F = 13W Compact Fluorescent
L = LED 8x1w

S = 14"
L = 20"

B = Black
S = Silver

E = Edge Clamp
F = Floor Stand
P = Panel Bracket
S = Slat Wall Bracket
T = Table Base
Z = Zero Clearance Bracket

Shade Color Options
AM = Amber
BK = Black (solid)
BL = Blue
BW = Blue White
GN = Green
PL = Purple
SM = Smoke
SI = Silver (solid)
WN = Wine
WT = White (solid)

Example = SUF–SSP–WT

Note: Colorsnot designated as solid are transparent.

Dimensions

Shade

Entire Fixture

Shade Color Options

Solid Color Shade Color Options

SURFSIDE

Fluorescent / LED Task Light

Features

Lamp: 13w compact fluorescent 4-pin /2G7 base (3500k). Lamps included. Or 8x1w LEDs (6500k). LEDs included.

Electrical: Wired for 120V 60Hz operation.

Ballast: In-line hybrid electronic ballast with quick connect cord.

Transformer (LED): In-line transformer with quick connect cord. Primary input: 120V. Secondary output: 12V.

Power Cord: Quick connect. Minimum 6ft (182mm) long.

Arm: Extruded aluminum, spring-balanced arm with adjustable tension joints. Available in 14" or 20" lengths.

Shade: Hi-impact polycarbonate with a perforated reflector and prismatic lens. Solid or transparent colors. See color options in options block.

Finish: Matte black or silver

Listing: UL/cUL listed.

Mounting Options

Edge Clamp (E): Clamps onto edge of desk or table.

Floor Stand (F): Weighted floor base.

Panel Bracket (P): Attaches to 1" slotted panel standard. Consult factory for furniture compatibility.

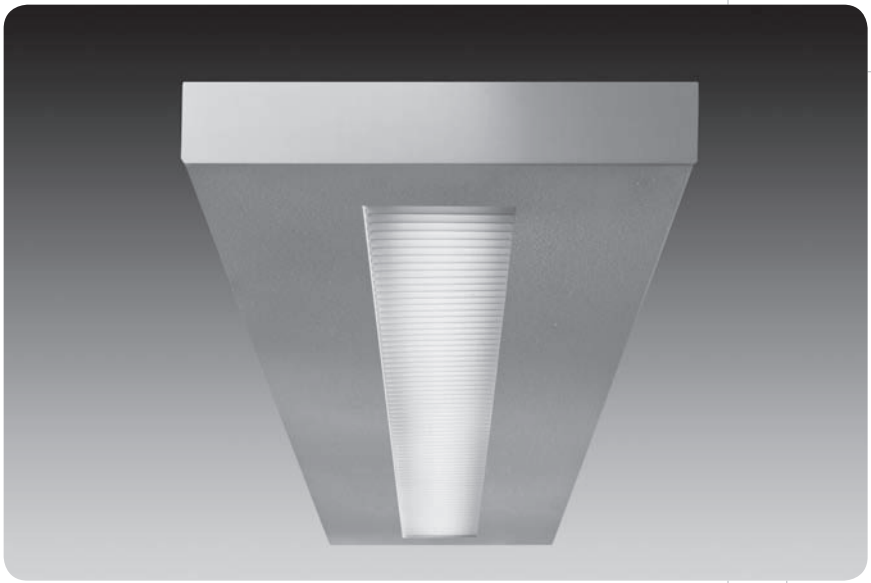
Slat Wall Bracket (S): Attaches to many furniture slat wall systems. Consult factory for furniture compatibility.

Table Base (T): 9" diameter weighted base for desktop use.

Zero Clearance Bracket (Z): Two-piece edge clamp for tight spaces. Clamps onto edge of desk or table.

louver/indirect

twelve™



Covered by the following U.S. Patents: 5,733,028; 5,914,487; 5,967,652; 6,043,873; 6,064,061; 6,088,091; 6,238,077; 6,266,136; 6,334,700.

FOCAL POINT®

features

Suspended direct/indirect ideal for low ceiling applications.

Twelve™ delivers 70% indirect/30% direct illumination.

The CU Filter precisely controls lamp brightness above the fixture to allow for 12" suspension lengths.

Sleek rectilinear design adds clean style to any space.

Parallel blade louver with acrylic lens diffuser provides comfortable downlight shielding.

Excellent choice for lower ceiling applications and areas where ceiling uniformity is important.

shielding options

solid indirect

louver

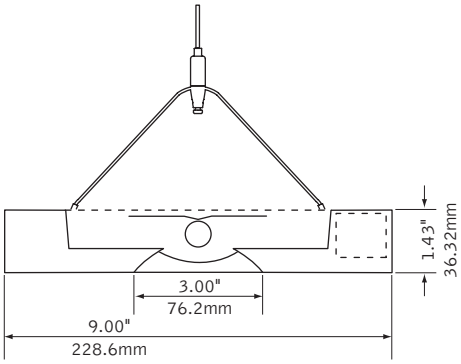
sensor options

daylight / occupancy sensor

companion luminaire

wall mount

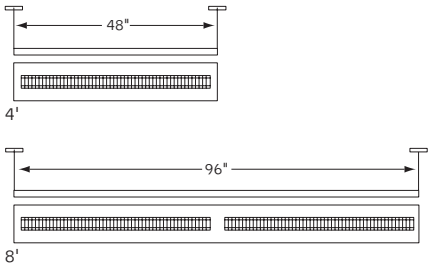
dimensional data



lamping options

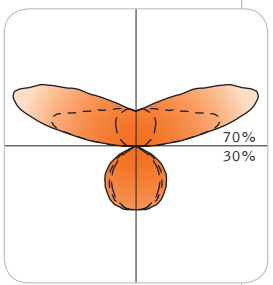
T5/T5HO LAMPS

fixture information



performance

1–Lamp T5HO
90% Efficiency
1264 cd @ 115°



Visit focalpointlights.com for complete photometric data.

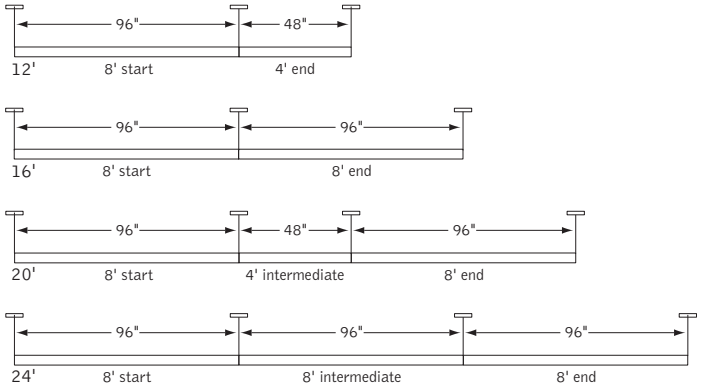
everGreen™

july 2008

fixture:

project:

suspension information



Consult factory for additional row length information.

specifications

construction

One-piece 20 Ga. steel housing.
14 Ga. steel end caps mechanically attach flush to housing with concealed fasteners.
For row installation, internal brackets form hairline joint.
Standard lengths are available in 4' and 8'.
All luminaires are provided with Y-cable suspension mounted on 48" or 96" centers.

4' unit weight: 20 lbs.
8' unit weight: 38 lbs.

optic

Reflector fabricated of low iridescent, semi specular premium grade aluminum.
Parallel Blade Louver: 24 Ga. steel, .5"H x 2.8"W x .56" frequency.
Louver blade finished to match housing and backed with an acrylic lens diffuser.
24 Ga. steel Ceiling Uniformity Filter (CU Filter) finished in high reflectance white powder coat.

electrical

Luminaires are pre–wired with factory installed branch circuit wiring and over-molded quick connects.
Factory installed SJT power cord at feed location is included.
Electronic ballasts are thermally protected and have a Class "P" rating.
Optional dimming ballasts available.
UL and cUL listed.

sensors

Lutron Daylight sensor is a directional sensor that operates with a Lutron EcoSystem ballast. The sensor has an integrated IR receiver for EcoSystem programming. One sensor controls multiple fixtures or groups of fixtures differently. Sensor should be mounted 1 to 2 times the effective window height (from 3' AFF, or bottom of window to top of window).

Lutron IR sensor controls individual or grouped EcoSystem ballasts or BMFs. Sensor provides a flashing LED response to indicate signal reception and received IR signals from up to 8' away when mounted on a 10' ceiling. Order Lutron IR remote accessory (LOR).

Wattstopper Daylight sensor is a closed loop system that measures total light level from daylight and electric light. A 0-10V dimming ballast is required, one sensor controls multiple fixtures. Sensor should be mounted 6-12' from window. Wattstopper daylight setup remote required for programming; one included per order. Order additional setup remote accessory (WYSR) or occupant controller remote accessory (WOR) for increased control.

Wattstopper Occupancy sensor is a passive infrared sensor designed for cubicles and small offices. It has built-in daylight sensing that will hold lights off when adequate ambient light exists. One sensor controls multiple fixtures.

finish

Polyester powder coat applied over a 5-stage pre–treatment.
Canopy finished in Matte Satin White.

ordering

fixture series		FTWS
twelve	FTWS	
shielding		NS
Parallel Blade Louver with CU Filter	PB	
Solid, no lens, 100% indirect	SD	
lamping		1T5
1 Lamp T5	1T5	
1 Lamp T5HO	1T5HO	
2 Lamp T5	2T5	
2 Lamp T5HO	2T5HO	
circuit		277
Single Circuit	1C	
Dual Circuit (Multiple lamp luminaires only)	2C	
voltage		S
120 Volt	120	
277 Volt	277	
347 Volt	347	
ballast		G1
Electronic Program Start <10% THD	S	
Electronic Dimming Ballast*	D	
mounting		-
12" Cable Suspension (5" canopy at feed locations and 2" canopy non–feed locations) (specify "C" in place of "J" for 5" dia. canopies both at power feed and non–feed locations) (suspension may be adjusted up to 24". Consult factory for lengths longer than 24")	J12	
Stem Mount (specify stem length in inches Standard stem lengths 6, 12, 18, 24, 36, 48". Stem painted white unless otherwise specified)	S__	
factory options		
Emergency Circuit*	EC	WH
Emergency Battery Pack*	EM	
HLR/GLR Fuse	FU	4'
Include 3000K Lamp	L830	
Include 3500K Lamp	L835	
Include 4100K Lamp (factory installed lamps recommended)	L841	
Lutron™ Daylight Sensor* (EcoSystem ballast required)	LY1	
Lutron™ IR Receiver* (EcoSystem ballast required)	LIR	
Lutron™ Sensor Feed* (EcoSystem ballast required)	SF	
WattStopper™ Daylight Sensor* (0–10V dimming ballast required)	WY1	W01
WattStopper™ Occupancy Sensor*	W01	
finish		TS
Matte Satin White	WH	
Titanium Silver (louver painted to match housing)	TS	
fixture run length		20'
4'	4'	
8'	8'	
12' (8'+4')	12'	
16' (8'+8')	16'	
20' (8'+4'+8')	20'	
24' (8'+8'+8') (individual units may not be field modified for continuous row mount)	24'	
remotes (specify quantity)		
WattStopper™ Daylight Setup Remote* (required for daylight programming, one included per order)	WYSR	
WattStopper™ Occupant Controller*	WOR	

* for more information see Reference section.

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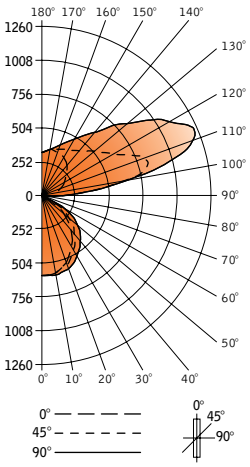
louver
twelve™

Filename: FTWSPB1T5H.IES
Catalog #: FTWS-PB-1T5HO-1C-120-S-C12-WH-4'
Efficiency: 90%
Test #: 12096.0

CANDLEPOWER DISTRIBUTION



Vertical Angle	Horizontal Angle 0°	22.5°	45°	67.5°	90°	Zonal Lumens
0°	590	590	590	590	590	
5°	587	589	590	593	593	56
15°	551	553	562	575	582	160
25°	486	492	510	537	553	238
35°	394	404	429	464	486	273
45°	290	301	333	376	407	263
55°	178	193	226	269	301	208
65°	86	99	126	157	177	127
75°	29	41	52	60	59	52
85°	0	7	11	11	7	9
90°	0	0	1	1	1	
95°	17	171	105	74	69	107
105°	75	364	788	952	937	690
115°	136	315	772	1151	1264	729
125°	202	312	609	928	1051	555
135°	255	330	516	722	806	406
145°	321	355	449	550	302	285
155°	357	373	415	462	490	194
165°	373	377	385	399	410	110
175°	365	365	365	364	364	35
180°	352	352	352	352	352	

Spacing 1.1
Criterion: 1.3

LUMEN SUMMARY

	Zone	Lumens	% Lamp	% Fixt
	0°-30°	454	9.1	10.1
	0°-90°	1387	27.7	30.8
	90°-130°	2082	41.6	46.3
	90°-180°	3112	62.2	69.2
Total Luminaire	0°-180°	4498	90.0	100.0

LUMINANCE DATA (CD/M²)

Vertical Angle	0°	45°	90°
45°	2147	2466	3014
55°	1625	2063	2748
65°			
75°	1066	1531	2193
85°	587	1052	1194

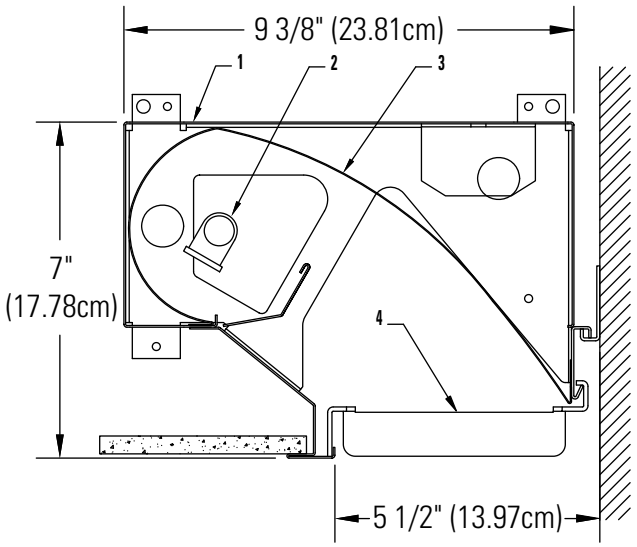
CO-EFFICIENTS OF UTILIZATION

Floor		80			70		50		30		10	00
Ceiling							20					
Wall	70	50	30	10	70	50	10	50	10	50	10	00
RCR 0	92	92	92	92	83	83	83	65	65	49	49	35	35	28
1	85	81	78	75	76	73	68	58	54	44	42	31	30	24
2	77	71	66	62	69	64	56	51	46	39	36	28	26	21
3	71	63	57	52	64	57	47	46	39	35	31	25	23	19
4	65	56	49	44	58	51	40	41	33	31	27	23	20	16
5	59	50	43	38	53	45	35	36	29	28	23	21	17	14
6	55	45	38	33	49	40	30	33	25	25	20	19	15	12
7	51	40	33	29	45	36	26	30	22	23	18	17	13	11
8	47	36	30	25	42	33	23	27	19	21	16	15	12	09
9	43	33	27	22	39	30	20	24	17	19	14	14	10	08
10	40	30	24	20	36	27	18	22	15	17	12	13	09	07

Numbers indicate percentage values of

Go to www.focalpointlights.com for additional photometric data.

F05



Quarter Scale

Module Ordering Information

Family	Lamps	Lamp Type	Shielding	Voltage	Length	Options
PTS5	1	S	S	2	4	
	1 = 1 Lamp	**S** = Standard **H** = HO	**O** = Open **L** = Lens **S** = Straight Blade Louver	**1** = 120V **2** = 277V **3** = 347V **D1** = 120V Dim. **D2** = 277V Dim. **E1** = 120V Emerg. **E2** = 277V Emerg.	**2** = Two-Foot **3** = Three-Foot **4** = Four-Foot **6** = Six-Foot **8** = Eight-Foot	**Blank** = No Options **A** = Adjustable* **X4** = 4 thru wires **X5** = 5 thru wires **A4** = Adjustable 4 thru wires* **A5** = Adjustable 5 thru wires*

** only available on Two-Foot, Three-Foot and Four-Foot versions. See length variations of adjustable fixtures on page 2.*

Features

1. **Housing:** Die-formed 20 gauge pre-painted steel. Integral heavy gauge bulkheads support housing and trim, permitting modules to be bolted together in continuous runs and facilitate suspension.
2. **Lamping:** Cross-sectional one linear T5 fluorescent lamp. Provided by others.
3. **Reflector:** Precision parabolic roll-formed semi-specular aluminum.
4. **Louver:** Lift and shift straight blade louver constructed from die-formed aluminum and painted to match housing. Louver blades are 1" (2.54cm) high on 1-1/8" (2.86cm) centers. (Optional)

Mounting

"J" Rail is first mounted to the wall and the modules connect to the rail for 1/4" (0.64cm) wall adjustment. Modules are hung from suspension wires attached to the fixture bulkheads and the structure above.

Electrical

Electronic Ballast: Programmed start, 3 conductor, 12 gauge wire. Color-coded quick connectors allow easy connection for modular fixutres. Factory installed ballast disconnect allows the ballast to be disconnected from and reconnected to incoming power under load without turning the entire circuit off.

Dimming: T5 lamp uses PowerSpec® HDF. Use PowerSpec® HDF compatible three-wire control (extra control lead required).

T5 HO lamp uses Advance Mark X. Use Advance compatible two-wire control (no extra control lead required).

Emergency Battery Pack: 450 Lumens @ 90 minimum.

Ordering Instructions

Individual Fixtures:

1. Order number of MODULES required.
2. Order one END SET per MODULE.

Continuous Rows:

1. Determine run length.
2. Order the appropriate number of MODULES for the complete ROW.
3. Stagger rows must be completed with an adjustable module. (2-light only)
4. Non-stagger rows must be completed with an adjustable module unless row lengths are in precise 1 foot (30.48cm) intervals.
5. Order one END SET per ROW.

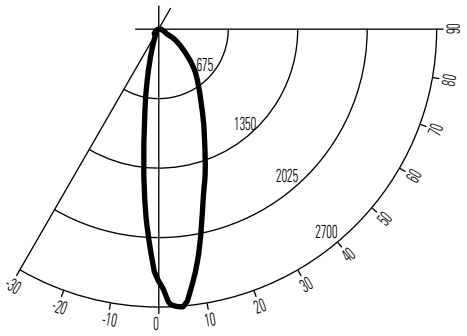
Labels

UL, cUL and IBEW

Job Information	Type:
Job Name:	
Cat. No.:	
Lamp(s):	
Notes:	

631 Airport Road, Fall River, MA 02720 • (508) 679-8131 • Fax (508) 674-4710

Performance & Quick Calculators



Report No: ITL53559
Cat No: PTS51HS14
Lamps: 1 F54T5
Lumens: 5000
Efficiency: 37.2%

CANDLEPOWER

ZONE	0	45	90	135	180
DEG.					
180	0	0	0	0	0
175	0	0	0	0	0
165	0	0	0	0	0
155	0	0	0	0	0
145	0	0	0	0	0
135	0	0	0	0	0
125	0	0	0	0	0
115	0	0	0	0	0
105	0	0	0	0	0
95	0	0	0	0	0
90	21	28	0	0	0
85	27	39	12	10	0
75	34	78	53	45	9
65	66	190	106	89	20
55	224	262	176	128	34
45	428	408	433	130	60
35	673	686	997	123	55
25	1036	1163	1558	203	83
15	1674	1943	2044	611	343
5	2708	2681	2376	1811	1594
0	2450	2450	2450	2450	2450

COEFFICIENTS OF UTILIZATION

% EFFECTIVE CEILING CAVITY REFLECTANCE

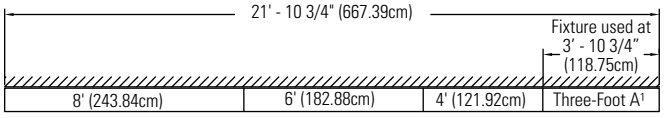
	80			70			50		
	% WALL REFLECTANCE								
ROOM CAVITY RATIO	70	50	30	70	50	30	50	30	10
0	44	44	44	43	43	43	41	41	41
1	41	40	39	40	39	38	28	37	36
2	39	36	34	38	36	34	34	33	32
3	36	33	31	35	33	30	32	30	28
4	34	30	28	33	30	28	29	27	25
5	32	28	25	31	28	25	27	25	23
6	30	26	23	29	26	23	25	23	21
7	28	24	22	28	24	22	24	21	20
8	27	23	20	26	23	20	22	20	18
9	25	21	19	25	21	19	21	19	17
10	24	20	18	24	20	18	20	17	16

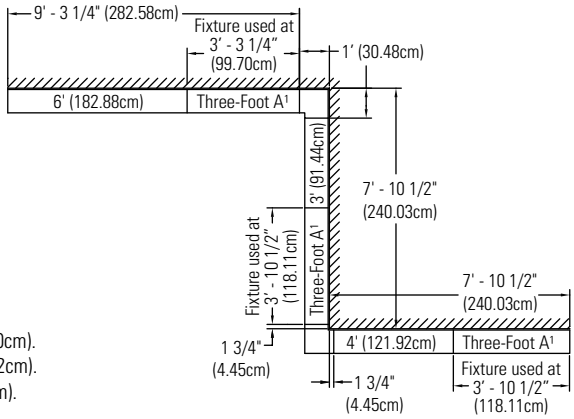
Floor cavity reflectance = 20%

ZONAL LUMEN SUMMARY

ZONE	LUMENS	% BARELAMP	% LUMINAIRE
0-90	1861	37.2	100.0
90-180	0.0	0.0	0.0
0-180	1861	37.2	100.0

Sample Run



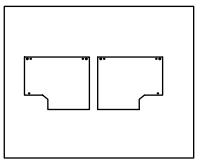


[1] *A = Adjustable Fixture or Adjustable Staggered Fixture*

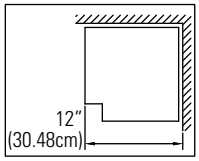
For Fixture Using non-Staggered Lamps
The Four-Foot Adjustable Fixture has a range of 48.75"(123.83cm) - 60"(152.40cm).
The Three-Foot Adjustable Fixture has a range of 36.75"(93.35cm) - 48"(121.92cm).
The Two-Foot Adjustable Fixture has a range of 24.75"(62.87cm) - 36"(91.44cm).

For Fixture Using Staggered Lamps
The Four-Foot Adjustable Staggered Fixture has a range of 51"(129.54cm) - 60"(152.40cm).
The Three-Foot Adjustable Staggered Fixture has a range of 39"(99.06cm) - 48"(121.92cm).
The Two-Foot Adjustable Staggered Fixture has a range of 27"(68.58cm) - 36"(91.44cm).

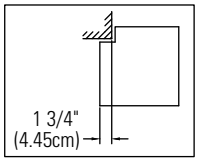
End Plate and Corner Block Accessories



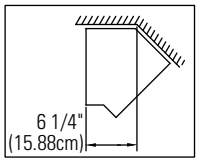
End Cap Set:
PTSEP



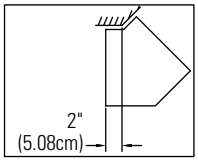
90° Inside Corner:
PTS9ØINCO - Open
PTS9ØINCL - Lens
PTS9ØINCS - Straight Blade Louver



90° Outside Corner:
PTS9ØOTCO - Open
PTS9ØOTCL - Lens
PTS9ØOTCS -Straight Blade Louver



135° Inside Corner:
PTS135INCO - Open
PTS135INCL - Lens
PTS135INCS - Straight Blade Louver



135° Outside Corner:
PTS135OTCO - Open
PTS135OTCL - Lens
PTS135OTCS - Straight Blade Louver

Job Information **Type:** F05

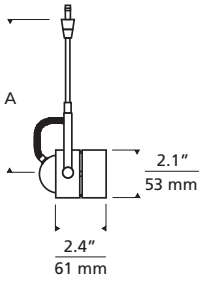
LOW-VOLTAGE ELEMENTS

Spot

FreeJack	MonoRail	Two-Circuit MonoRail	Wall MonoRail	Kable Lite	T~trak™
				N/A	

ARCHITECTURAL HEAD

SPOT WITH EGGCRATE LOUVER
Shown approximately 50% actual size.



Socket terminates with FreeJack male connector, which may be installed into a system connector. Elements ordered with a system prefix include a connector for that system.

DESCRIPTION
Classic head rotates 360˚ around stem, pivots 290˚. Can hold one lens or louver (sold separately). Low-voltage, MR16 lamp of up to 50 watts (not included).

SYSTEM
Available for FreeJack, MonoRail, Two-Circuit MonoRail, and Wall MonoRail. For use on T~trak, order FreeJack version and T~trak FreeJack Connector (sold separately).

COLOR
None.

FINISH
Chrome, satin nickel.

LAMP
Low-voltage halogen MR16 lamp up to 50 watts (not included).

ACCESSORIES AND OPTICAL CONTROLS
Compatible optical controls (sold separately): Eggcrate Louver, Glass Lens.

WEIGHT
0.84 lb./0.38 kg. ±

ORDERING INFORMATION

700	SYSTEM	SPT6	LENGTH (A)	FINISH
	FJ FREEJACK		**04** 4.5"	**C** CHROME
	MO MONORAIL		**06** 6"	**S** SATIN NICKEL
	MO2 TWO-CIRCUIT MONORAIL		**12** 12"	
			18 18"	
	WMO WALL MONORAIL			

TECH LIGHTING®

7400 Linder Avenue
Skokie, Illinois 60077
T 847.410.4400
F 847.410.4500

www.techlighting.com

700 MO SPT6 04 S

FIXTURE TYPE: F06

JOB NAME: UCI NAT. SCI. II

Straight Rail

ANTIQUE BRONZE - BROWN INSULATOR

ANTIQUE BRONZE - CLEAR INSULATOR

CHROME - CLEAR INSULATOR

SATIN NICKEL - CLEAR INSULATOR

SHOWN ACTUAL SIZE
(0.60" height x 0.30" width)

mo_straight_rail_spec.pdf

DESCRIPTION

Low-voltage conductor of two individual conductive metal pieces fused together by a plastic separator. Hand-bendable, field-cuttable MonoRail is rated for 300 watts at 12 volts, 600 watts at 24 volts. Each piece of rail is shipped with conductive connectors to join rail pieces end to end. Order additional connectors if cutting and rejoining rails. Standard MonoRail bends horizontally to a radius as small as 6" and vertically to a radius as small as 24".

COLOR

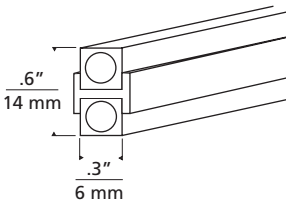
Insulator is available in clear and brown.

FINISH

Antique bronze, chrome, satin nickel.

WEIGHT

24": 0.27 lb./0.12 kg. ±
48": 0.55 lb./0.25 kg. ±
96": 1.10 lb./0.50 kg. ±



ORDERING INFORMATION

700MOA

LENGTH		FINISH/INSULATOR	
24	24" (0.6 m)	**BRZ**	ANTIQUE BRONZE W/ BROWN INSULATOR
48	48" (1.2 m)	**Z**	ANTIQUE BRONZE W/ CLEAR INSULATOR
96	96" (2.4 m)	**C**	CHROME W/ CLEAR INSULATOR
		S	SATIN NICKEL W/ CLEAR INSULATOR

TECH LIGHTING®

7400 Linder Avenue
Skokie, Illinois 60077
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F 847.410.4500

www.techlighting.com

700MOA 48+24 S

FIXTURE TYPE: T01

JOB NAME: UCI NAT. SCI II

Ballerup

compact fluorescent

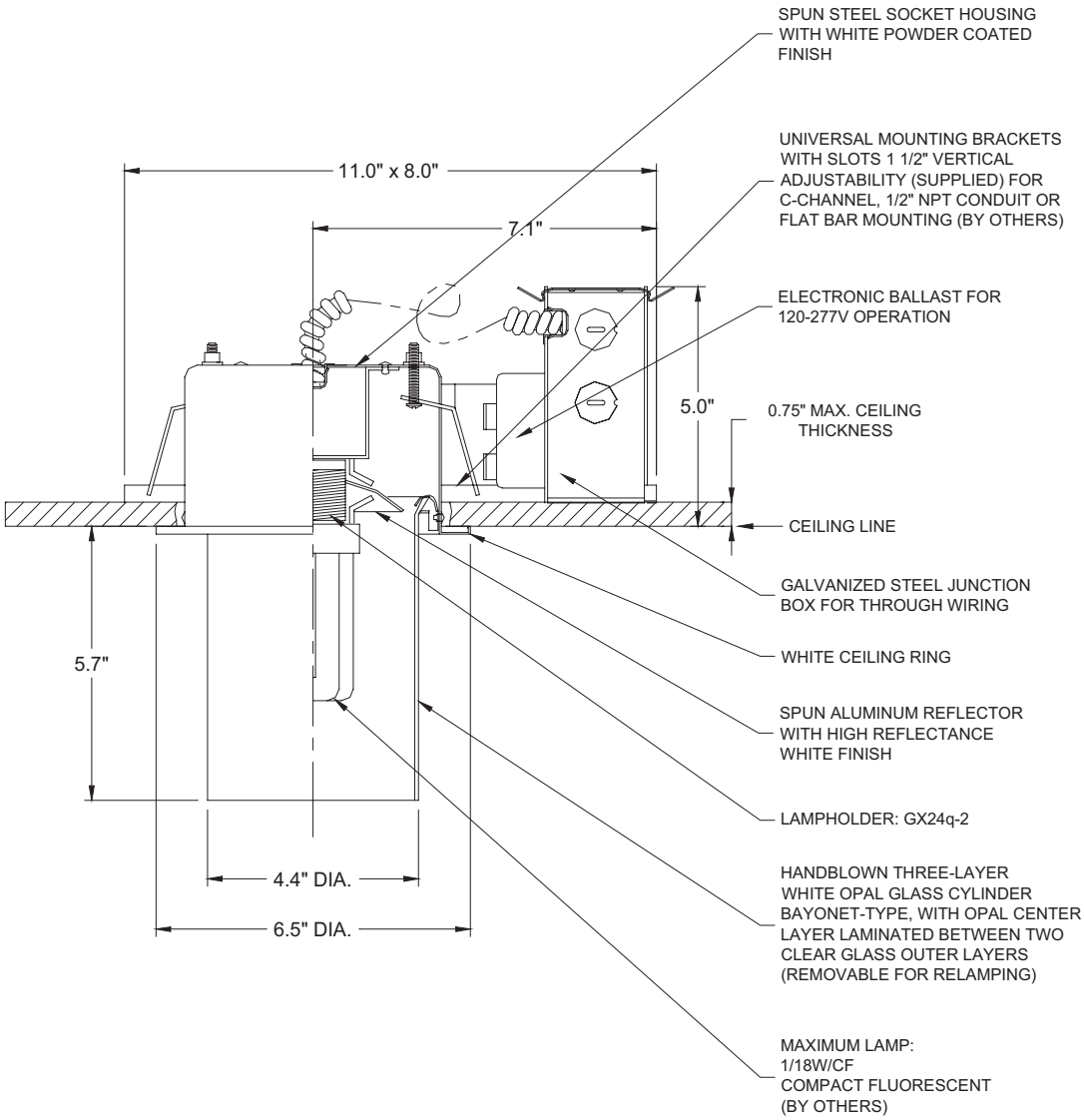
Design: C. J. Nørgaard Pedersen
and P. Hougaard Nielsen

Type: F07

Project:

Catalog Number:

NOTES:
1. SUITABLE FOR ACCESSIBLE NON-ACCESSIBLE CEILING TYPES
2. CEILING CUTOUT = 5.5" DIAMETER



louis poulsen

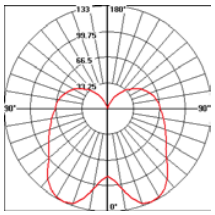
Louis Poulsen Lighting, Inc., 3260 Meridian Parkway, Fort Lauderdale, FL 33331 Telephone: (954) 349-2525 Fax: (954) 349-2550

www.louispoulsen.com

Ballerup

semi-recessed & surface

compact fluorescent



Photometric Report: BAL-1-18W-GX24Q-2.IES
Report No.: L3453
Poulsen Report No.: BAL-1-18W-GX24Q-2.IES
Luminaire: Ballerup Ceiling, Opal, Compact Fluorescent
Lamp: 1/18W/GX24Q-2
Efficiency: 86.6%
Description: All data shown are per 1000 lumens. This report can be used for calculation on all versions listed below. Use only actual lumen data when calculating.

Candlepower Distribution

Vertical Angle	Candela
0	88
5	93
10	105
25	133
40	120
55	92
70	79
85	70
90	67
120	50
150	16
180	0.1

Zonal Lumen Summary

Zone	Lumens	% Lamp	% Fixture
0-30	104	10.4	12
0-40	184	18.4	21.2
0-60	351	35.1	50.4
0-90	590	59	68.1
90-120	190	19	21.9
90-130	230	23	26.6
90-150	271	27.1	31.3
90-180	276	27.6	31.9
0-180	866	86.6	100.0

Coefficients of Utilization - Zonal Cavity Method
Effective Floor Cavity Reflectance 20%

Ceiling Reflectance (%)	80				70				50			30			10			0
Wall Reflectance (%)	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	0
Room Cavity Ratio																		
0	97	97	97	97	91	91	91	91	81	81	81	72	72	72	63	63	63	59
1	85	79	75	70	79	75	70	66	66	62	59	58	55	53	50	48	46	42
2	76	68	61	55	71	63	57	52	56	51	47	49	45	41	42	39	37	33
3	68	58	51	44	64	55	48	42	48	43	38	42	38	34	37	33	30	27
4	62	51	43	37	58	48	41	35	42	36	32	37	32	28	32	28	25	22
5	57	45	37	31	53	43	35	30	38	31	27	33	28	24	29	25	21	19
6	52	40	32	27	49	38	31	25	34	28	23	30	25	21	26	22	18	16
7	48	36	29	23	45	34	27	22	30	24	20	27	22	18	23	19	16	14
8	45	33	25	20	42	31	24	19	28	22	18	24	19	16	21	17	14	12
9	42	30	23	18	39	28	22	17	25	20	16	22	18	14	20	16	13	11
10	39	27	21	16	36	26	20	15	23	18	14	21	16	13	18	14	11	10

Design
C. J. Nørgaard Pedersen & P. Hougaard Nielsen

Concept
Ballerup creates symmetrical down light illumination. The vertical three layer opal glass cylinder provides both the ceiling and the rest of the space with soft, diffuse illumination, with the majority of light directed downward.

Finish
White, powder coated. White opal glass.

Material
Diffuser: Handblown white opal glass. Housing: Spun steel.

Mounting
Semi-recessed: Mounting frame with two vertically adjustable brackets spaced equally at 180° to be installed prior to closing the ceiling. Ceiling types: Accessible and non-accessible ceilings. Ceiling cutout: 5.5" diameter.

Weight
Max. 10 lbs.

Label
cUL, Damp location. IBEW.

Product code	Light source	Voltage	Finish	Options
BAL	1/18W/CF GX24q-2 1/100W/A-19/CL medium	120-277V 120/277V 120V 277V	WHT	EMPK LUTRON DIMMING

Specification notes:
a. CF variants provided with one 120-277V electronic ballast.
b. Incandescent variants only available in 120V.
c. EMPK (emergency power pack) is available in dual tap 120/277V with remote mounted test switch.
d. LUTRON dimming 120V or 277V is digital dimming.

Info notes:
I. The comparable EU version has the following classification: Ingress Protection Code: IP20.

louis poulsen

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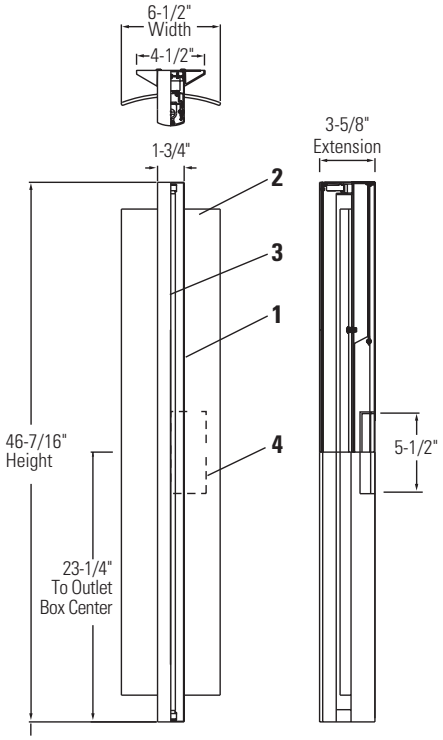
F08



Note:
Luminaire can be ordered with or without diffuser shield. Order each separately.
Can be mounted vertically or horizontally.

Fixture Ordering Information

Catalog No.	Finish	Wattage	Voltage	Lamping	Options
48023ALU	Powder Coated	28W	120/277V	T-5 Miniature Bi-Pin Fluorescent	See Below
48023AL54U	Metallic **Aluminum**	54W	120/277V	T-5 Miniature Bi-Pin Fluorescent HO	

Diffuser Ordering Information

Catalog No.	Description	Dimensions
40876	Translucent Etched Soda Lime Glass w/ Pencil Polished Edges	43" L x 6.5" W x 5 mm Thick
40916	Extruded Opal Virgin Acrylic w/ Pencil Polished Edges	43" L x 6.5" W x 5 mm Thick

Features

1. **Housing:** Extruded and die-cast aluminum ballast and lamp chamber.
2. **Optional Diffuser/Reflector:** Curved etched glass or extruded opal virgin acrylic.
3. **Optics:** Internal white acrylic diffuser covers slit on front cover.
4. **J-Box Covers:** Die-cast split covers to enclose 4" octagonal J-Box (J-Box by others).

Mounting

Mounts directly to switch box or 4" octagonal J-Box. Octagonal box mounting requires use of "J-Box Covers" and "Support Plate" supplied standard.

Electrical

Ballast: Electronic

120/277V	28W	54W
Total Input Watts:	33W	62W
Max. Line Current:	120V = 0.28 277V = 0.12	120V=.51 277V=.21
Power Factor:	.98	.98
Ballast Factor:	1.00	1.00
THD:	120V = <10% 277V = <10%	120V = <10% 277V = <10%
Starting Temp:	0°F / -18°C	0°F / -18°C

Finish

All painted parts utilized the powder coat process. Lightolier Metallic Aluminum Powder Coat Enamel.

Options

Dimming: (Voltage Specific/54W HO lamps only)
Add **MX1** suffix code (for 120V) to Cat. No.
Add **MX2** suffix code (for 277V) to Cat. No.
for example: 48023AL4MX1
Emergency: Integral Bodine LP550 emergency battery pack, test switch and light, add **E** suffix code.
DALI: Digital Dimming System ballast 120/277V. For 28W lamps add **28DA** suffix code to Cat. No. For 54W lamps add **54DA** suffix code to Cat. No.
for example: 48023AL54DA

Labels

cULus Listed. Suitable for Damp Locations.

Job Information Type:

Job Name:

Cat. No.:

Lamp(s):

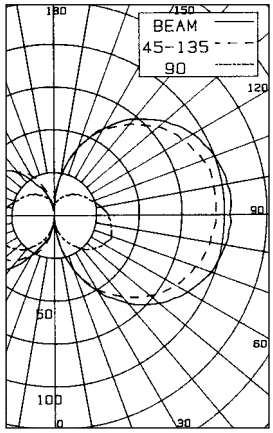
Notes:

Lightolier a Genlyte company www.lightolier.com
631 Airport Road, Fall River, MA 02720 • (508) 679-8131 • Fax (508) 674-4710

LIGHTOLIER

F08

CERTIFIED TEST REPORT NO. 2221FR
COMPUTED BY LSI PROGRAM **TEST-LITE**
LIGHTOLIER ARCHITECTURAL DECORATIVE LUMINAIRE SOLI
CAT. NO. 48023ALU / 40876, ETCHED GLASS SHIELD
1-28W SYLVANIA T-5 LAMP. LUMEN RATING = 2610 LMS.
UNIVERSAL BALLAST #B228PUNVC



Prepared For:
Lightolier
Fall River, MA
Date: May 11, 2003

ZONE ➤ DEG. ▼	90	67.5	45	22.5	Beam
	CANDLEPOWER				
	CANDELAS				
0	2	2	2	2	2
5	5	4	5	6	6
15	10	13	24	27	25
25	16	30	42	45	43
35	22	41	56	59	59
45	28	52	68	70	74
55	32	60	78	80	85
65	35	67	85	87	94
75	35	72	91	92	100
85	33	75	94	95	103
95	30	77	95	97	104
105	26	77	95	96	102
115	22	74	90	92	97
125	20	68	84	85	90
135	17	61	74	76	79
145	14	50	63	66	66
155	12	41	50	53	50
165	9	25	33	35	33
175	7	11	14	15	15
180	6	6	6	6	6

Tested according to IES procedures.
Test distance exceeds five times the greatest luminous opening of luminaire.

COEFFICIENTS OF UTILIZATION
% EFFECTIVE CEILING CAVITY REFLECTANCE

	80			70			50			30			10			0
	% WALL REFLECTION															
ROOM CAVITY RATIO	50	30	10	50	30	10	50	30	10	50	30	10	50	30	10	0
0	27	27	27	25	25	25	21	21	21	17	17	17	14	14	14	12
1	21	20	19	20	18	17	16	15	14	13	12	12	10	10	9	8
2	18	16	14	16	15	13	13	12	11	11	10	9	8	7	7	5
3	15	13	11	14	12	10	11	10	8	9	8	7	7	6	6	4
4	13	11	9	12	10	8	10	8	7	8	6	5	6	5	4	3
5	12	9	7	11	8	7	9	7	6	7	5	4	5	4	3	2
6	10	8	6	9	7	6	8	6	5	6	5	4	5	3	3	2
7	9	7	5	8	6	5	7	5	4	5	4	3	4	3	2	2
8	8	6	5	8	6	4	6	5	3	5	4	3	4	3	2	1
9	7	5	4	7	5	4	6	4	3	4	3	2	3	2	2	1
10	7	5	3	6	4	3	5	4	3	4	3	2	3	2	1	1

DETERMINED IN ACCORDANCE WITH CURRENT IES PUBLISHED PROCEDURES
20% FLOOR CAVITY REFLECTANCE

DISTRIBUTION

Zone	Lumens	% Lamp	% Luminaire
0-30	18	0.7	2.87
0-40	43	1.6	6.61
0-60	128	4.9	19.69
0-90	323	12.4	49.44
40-90	279	10.7	42.83
60-90	194	7.4	29.75
90-180	330	12.7	50.56
0-180	653	25.0	100.00

** EFFICIENCY = 25.0% **

Note:
For 54 watt lamp, multiply calculated footcandle values by 1.7

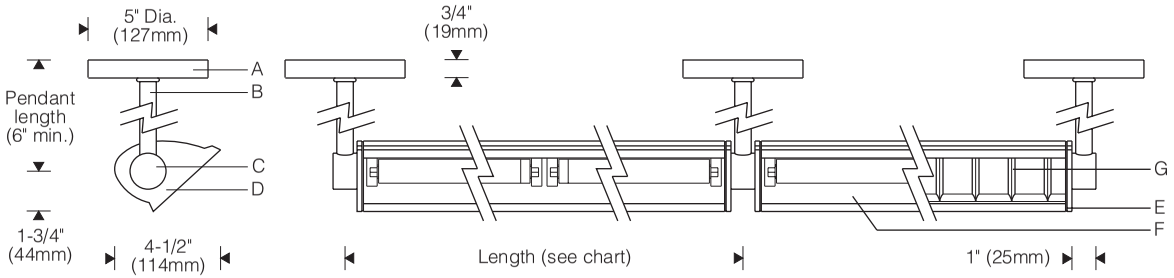
LIGHTOLIER

Job Information Type:

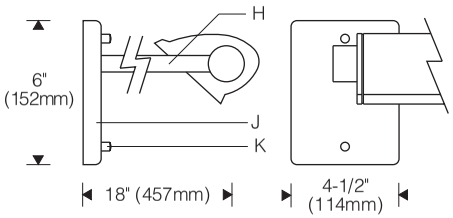
Lightolier a Genlyte company www.lightolier.com
631 Airport Road, Fall River, MA 02720 • (508) 679-8131 • Fax (508) 674-4710
We reserve the right to change details of design, materials and finish.

F09

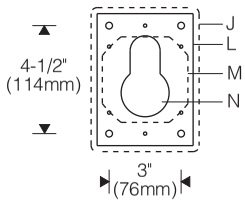
Pendant Mount 1:8 Scale



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 aluminum 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 (with end-of-life protection for T5 lamps). 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.

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 124 painted model with lens recommended for damp locations.)

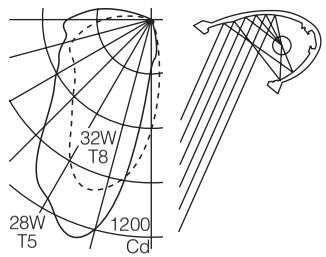
Features

- *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, see www.elliptipar.com.

elliptipar

To Order

Style 101 / 102

To form a Catalog Number

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

1 2 3 4 5 6 7 8

Project: **UCI NATURAL SCIENCES UNIT 2**

Type: **F09**

1 Source

F = Linear fluorescent

2 Style

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

3 Lamp

T **3** **35** = **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	1-Lamp Ballast 1-Lamp Reflector
2	2-Lamp Ballast 2-Lamp Reflector
3	2-Lamp Ballast 1-Lamp Reflector 1-Lamp Reflector

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** (F54T5/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.

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)

*Dimming**

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

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.)

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.

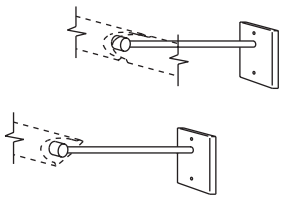
Note: In determining hanger quantities, treat Reflector Configuration **3** as *two* reflectors.

HS [ ] [ ] **18** [ ] = **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



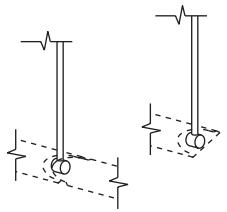
HS [ ] [ ] [ ] [ ] = **Pendant** hanger with canopy

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

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

iColor Cove QLX

CK INTELLIGENT SERIES

Preliminary

iColor Cove® QLX is a compact linear fixture that generates saturated color and dynamic effects in alcoves, accent areas, and other interior spaces. The fixture is available with a wide (120° x 120°) or medium (100° x 40°) beam. An integrated rotating mount and optional mounting track provide precise positioning, and end-to-end connections ensure a simple installation.

- Integral mounting bracket with 180° rotation
- 24 VDC input power
- End-to-end connectors
- Two standard lengths: 6 in (152 mm) and 12 in (305 mm)
- Optibin® technology ensures uniform light quality
- Chromasic® technology provides precise and cost-efficient digital control

CHROMACORE® CK TECHNOLOGY

CHROMASIC® CK TECHNOLOGY

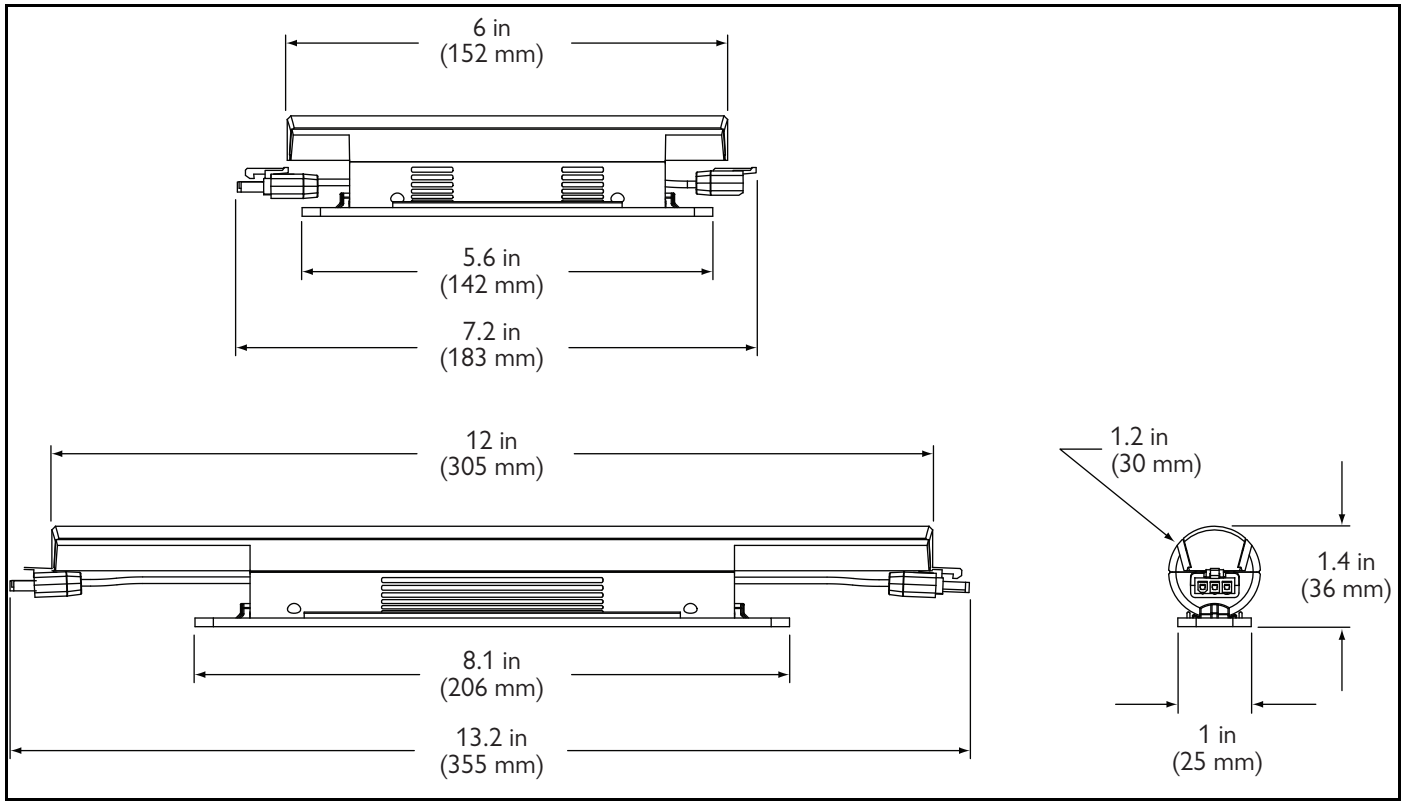
OPTIBIN® CK TECHNOLOGY

c UL us LISTED

CE

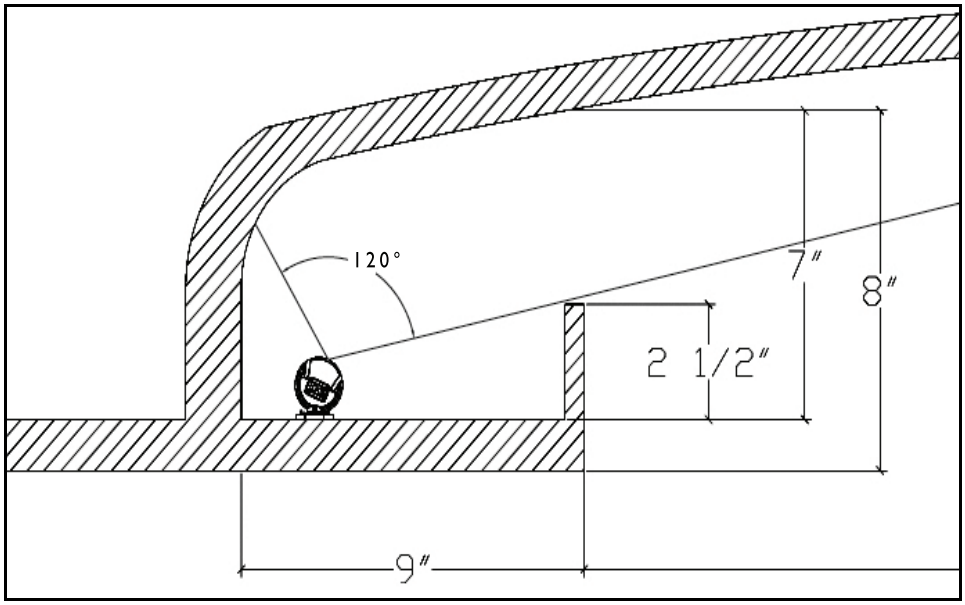
PHILIPS

iColor Cove QLX Dimensions



Typical Installation Cut-Away

iColor Cove QLX fixtures can be used effectively in numerous applications. A typical ceiling cove construction cut-away is shown below. (See “Installation Details” on page 9.)



F10

iColor Cove QLX Specifications

Specifications are subject to change without notice.

	6-Inch Fixture	12-Inch Fixture
Length	6 in (152 mm)	12 in (305 mm)
Width	1.25 in (32 mm) (tube diameter)	
Height	1.37 in (35 mm)	
Weight	3 oz. (85 g)	5 oz. (142 g)
LEDs Per Fixture	5 each: red, green, and blue	10 each: red, green, and blue
Total Output (Lumens)	26: Wide (120° x 120°) beam angle: 20.8: Medium (100° x 40°) beam angle	49.8: Wide (120° x 120°) beam angle 46.1: Medium (100° x 40°) beam angle
Efficacy (Lm/W)[a]	13: Wide (120° x 120°) beam angle 10.4: Medium (100° x 40°) beam angle	16.6: Wide (120° x 120°) beam angle 15.4: Medium (100° x 40°) beam angle
Source	High-brightness LEDs.	
Color Range	16.7 million (8-bit) additive RGB colors; continuously variable intensity	
Beam Angle	120° x 120° or 100° x 40°	
Mixing Distance	2 in (51 mm) to uniform light	
Housing	Charcoal gray, UL-recognized, injection-molded plastic	
Lens	Clear polycarbonate. V-0 flame rating. F1 UV rating.	
Medium-Beam Optics	Polycarbonate.	
Environment	UL Dry; IP20	
Fixture Connectors	IEC 15 A (max) with C13 plug	
Configuration	See “Maximum Number of Fixtures and Cables” below.	
Listings	CE, PSE, RoHS, UL/CUL, WEEE, C-Tick	
Control	Chromasic input data	
Operating Voltage	24 VDC from a Philips or Color Kinetics DMX In / Chromasic Out power supply	
Power Consumption	2 W maximum at full output steady state.	3 W maximum at full output steady state.
Temperature Range	-4°F – 122°F (-20°C – 50°C) operating temperature	
Humidity Range	0 – 95% non-condensing	
LED Source Life	50,000 hours, based on LED manufacturers’ test data	

a. Measurements made at full RGB.

Maximum Number of Fixtures and Cables

If no jumper cables are used, you may interconnect as many as either 30 6 in (152 mm) fixtures (on a single 60W power supply) or 20 12 in (305 mm) fixtures (on a single 60W power supply).

If you plan to use jumper cables:

- The maximum number of 1 ft (305 mm) jumper cables is nine; the maximim number of 5 ft (1524 mm) jumper cables is five.
- If you plan to combine jumper cables of different lengths, please contact support@colorkinetics.com for help with planning your configuration.

F10

Ordering Information

iColor Cove QLX Item Numbers

Fixture Length	Beam Angle	Item Number	Part Number
12 in (305 mm)	Wide 120° x 120°	101-000066-00	910503700217
	Medium 100° x 40°	101-000066-01	910503700219
6 in (152 mm)	Wide 120° x 120°	101-000066-02	910503700218
	Medium 100° x 40°	101-000066-03	910503700220

Accessories for iColor Cove QLX Fixtures

iColor Cove QLX fixtures are part of a low-voltage system made up of the fixtures and:

- One or more compatible power supplies from the list below.
- One leader cable used to connect each power supply output port to a series of fixtures.
- A Philips, Color Kinetics, or other DMX512-based controller that works with iColor Cove QLX fixtures. The number of fixtures that can be addressed varies with each controller and jumper cable length. For information on Philips or Color Kinetics controllers, see http://www.colorkinetics.com/support/systemguide/SysMatrix.pdf.

Compatible Philips and Color Kinetics Power Supplies	Item Number	Part Number
sPDS-60ca 24V — provides 60W output that can be split between two ports.	109-000021-02 (DMX / Ethernet)	910503700106
PDS-60ca — provides 60W output that can be split between two ports.	109-000016-00 (preprogrammed) or 109-000016-01 (DMX)	910503700095
sPDS-480ca 24V — provides eight 60W output ports	109-000026-00	910503700110

Leader Cable	Item Number	Part Number
30 ft (9144 mm) leader cable	108-000015-00	910503700072

Depending on the installation's design, you may need optional jumper cables to add space between fixtures. Optional mounting tracks ensure straight runs of fixtures.

Jumper Cables	Item Number	Part Number
1 ft (305 mm) jumper cable	108-000020-00	910503700079
5 ft (1524 mm) jumper cable	108-000020-01	910503700080

Mounting Track	Item Number	Part Number
Box of 25 mounting tracks — 4 ft (1219 mm) in length — for straight runs	523-000006-00	910403326201

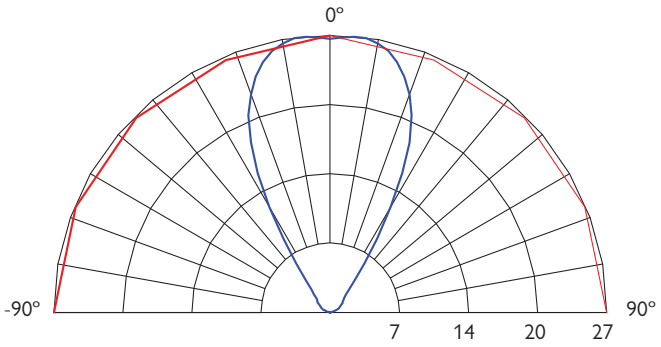
F10

12 Inch iColor Cove QLX — Medium Beam Photometrics

This photometric data is based on test results from an independent testing lab. IES files are available at http://www.colorkinetics.com/support/ies.

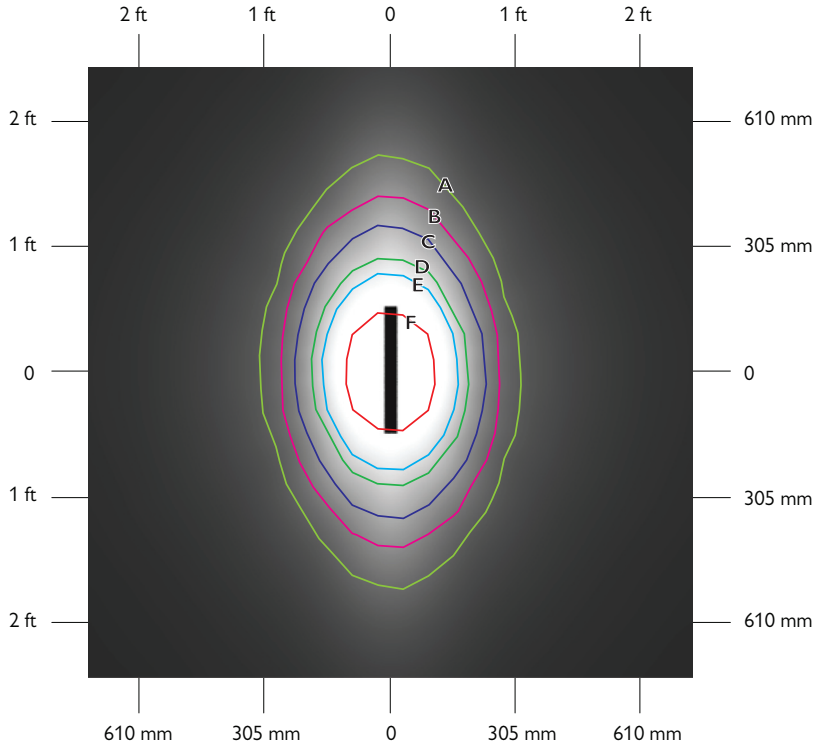
Candle Power Distribution

Data to come later: The dashed line indicates that x candela is x% of peak.



Illuminance Distribution

This illustration shows the plane x ft (x mm) from the fixture. Data is in footcandles and (lux).



A 1.5 fc (16 lux) B 3 fc (32 lux) C 5 fc (54 lux)
D 8 fc (86 lux) E 10 fc (108 lux) F 15 fc (161 lux)

Illuminance Beam Angle

This illustration shows measurement of the center beam and the fixture's angle. Data is in footcandles and (lux).

Illustration to come later

F10

12 Inch iColor Cove QLX — Wide Beam Photometrics

This photometric data is based on test results from an independent testing lab. IES files are available at http://www.colorkinetics.com/support/ies.

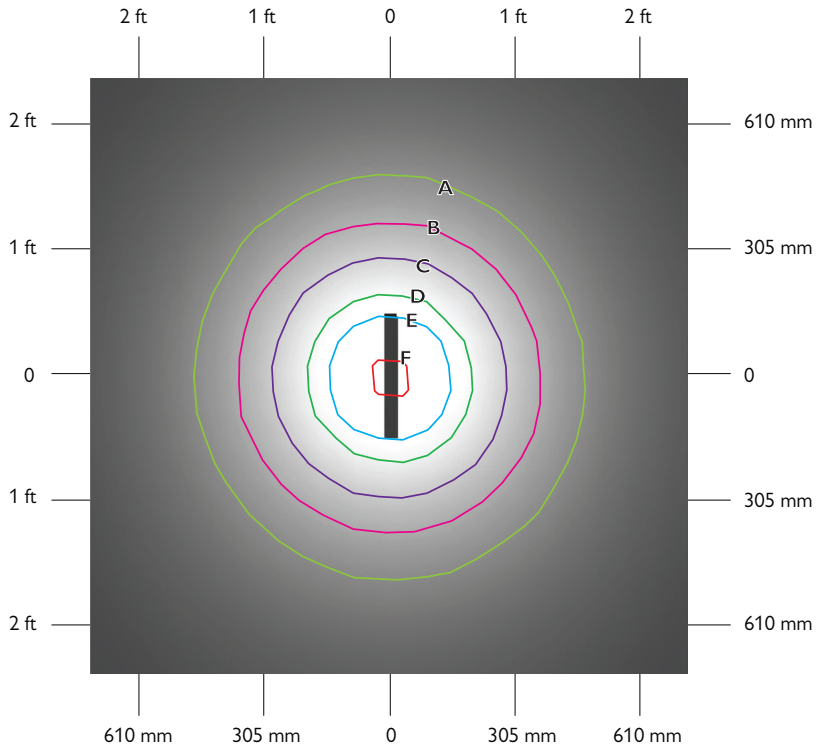
Candle Power Distribution

Data to come later: The dashed line indicates that x candela is x% of peak.

Illustration to come later

Illuminance Distribution

This illustration shows the plane x ft (x mm) from the fixture. Data is in footcandles and (lux).



A 1.5 fc (16 lux) B 3 fc (32 lux) C 5 fc (54 lux)
D 8 fc (86 lux) E 10 fc (108 lux) F 13 fc (140 lux)

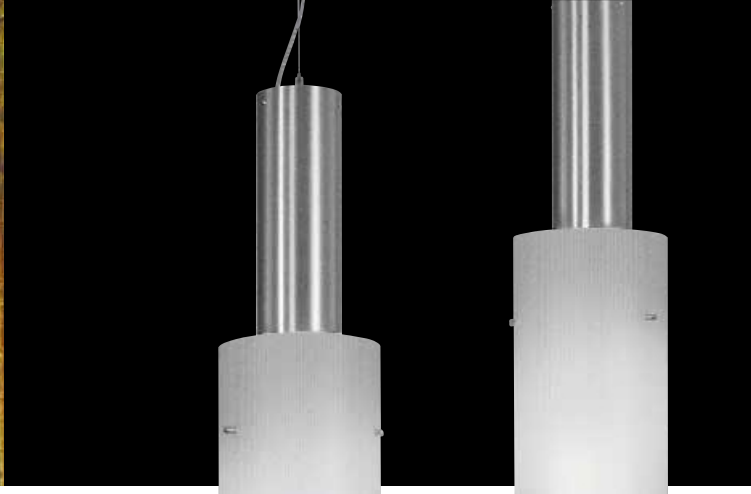
Illuminance Beam Angle

This illustration shows measurement of the center beam and the fixture's angle. Data is in footcandles and (lux).

Illustration to come later

PENDANT LIGHTS

TOOL



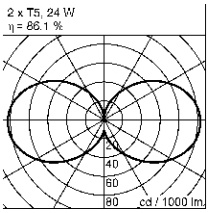
TOOL

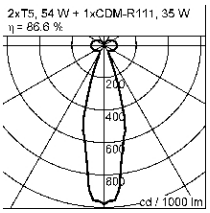
satin nickel
ribbed acrylic tube satin
with electronic ballast
120 / 277 VAC

contact factory for dimming options

add HO for high output T5 lamp

mounting note: canopy to fit standard junction box





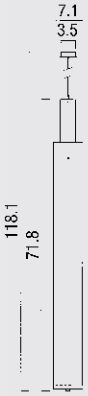
2 x T5, 28 W
and
1 x CDM-R111, 35 W, GX8.5
36237.06

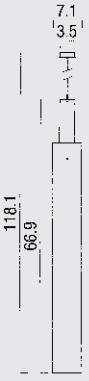
2 x T5 HO, 54 W
and
1 x CDM-R111, 35 W, GX8.5
36214.06

please specify
120 or 277 VAC

2 x T5, 28 W
26237.06

2 x T5 HO, 54 W
26213.06





T5 | CDM-R111 | GX24q-3/4 | 2G11

F11

TOOL

2 x T5, 14 W
and
1 x CDM-R111, 35 W, GX8.5
36238.06

2 x T5 HO, 24 W
and
1 x CDM-R111, 35 W, GX8.5
36212.06

please specify
120 or 277 VAC

2 x T5, 14 W
26238.06

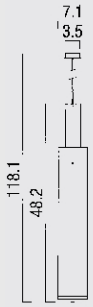
2 x T5 HO, 24 W
26211.06

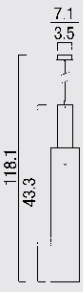
2 x 2G11, 24 W
26210.06

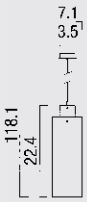
2 x 2G11, 18 W
26209.06

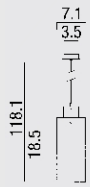
1 x GX24q-3, 32 W
16207.06

1 x GX24q-4, 42 W
16208.06









see chapter
wall lights

see chapter
ceiling lights

Recessed wall luminaires · faceplate stainless steel

Housing: Aluminum outer rough-in housing provided. The outer housing is provided with (2) ½" conduit openings suitable for through wiring. Inner housing made from die-cast aluminum end caps welded to an aluminum extrusion. The welds are continuous and ground flat to provide a watertight inner lamp housing module. All aluminum used in the construction is marine grade and copper free.

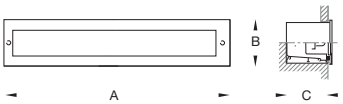
Enclosure: Faceplate is constructed of machined stainless steel, secured to the inner housing with captive stainless steel fasteners. Tempered white glass, ⅜" thick, machined to be flush with the faceplate. Fully gasketed with a molded silicone "U" channel gasket. The inner lamp module is fully sealed and independent of the outer housing installation.

Electrical: Lampholders; Fluorescent T5 HO, G5 miniature bi-pin. Ballasts; integral electronic, universal voltage 120 V through 277 V, class P, HPF, program start, minimum start temperature of 0 °F. Ballasts have circuitry to reliably shut down the system at the end of lamp life. Standard T5 lamping available on request.

Finish: #4 brushed stainless steel. Custom colors are not available. Stainless steel requires regular cleaning and maintenance, much like household appliances, to maintain its luster and to prevent tarnishing or the appearance of rust like stains.

U.L. listed, suitable for wet locations. Protection class: IP 65. Not suitable for installation inside of a spa, sauna, or in the wall of a shower/bath stall. BEGA does not recommend luminaires with non-isolated metal parts be used in these applications.

Type: S01
BEGA Product: 2007P
Project: UCI NAT SCI II
Voltage: 277
Color:
Options:
Modified:



Unshielded light · **white** safety glass

		Lamp*	Lumen	A	B	C
2007 P	ADA	80 W FL T5 HO	7000	60 7/8	5	5

* Standard T5 lamping available

BEGA-US 1000 BEGA Way, Carpinteria, CA 93013 (805) 684-0533 FAX (805) 566-9474 www.bega-us.com

Drive-over in-grade floodlights for linear fluorescent lamps

Type: S02
BEGA Product: 8642P
Project: UCI NAT SCI II
Voltage: 277
Color:
Options:
Modified:

Enclosure: Outer housing: Constructed of high tensile strength, copper free die-cast aluminum alloy.

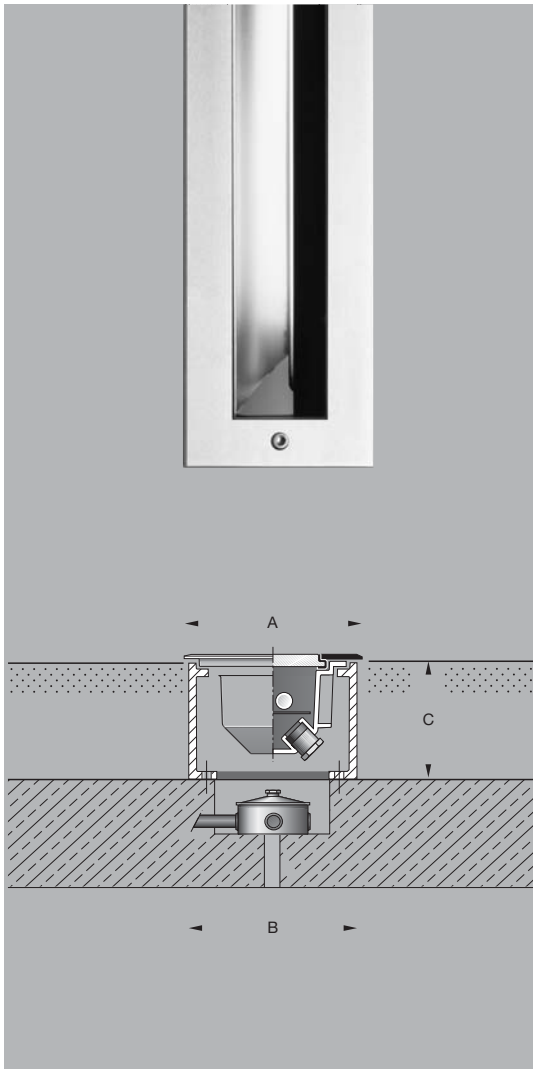
Inner housing: One piece copper free die-cast aluminum housing with welded end caps. Trim/Faceplate is heavy gauge, machined stainless steel secured to the inner housing by stainless steel threaded welded studs. Relamping requires removal of inner housing/trim/faceplate assembly from outer housing by means of two flush, socket head stainless steel screws. ½" thick tempered glass machined flush to faceplate. Reflector of pure anodized aluminum. One piece molded U-channel, high temperature silicone gasket.

Electrical: Lampholders: Fluorescent T5 HO, rated 660 W, 600 V. Ballasts are electronic, universal voltage 120 V through 277 V. Inner housing pre-wired with three (3) feet of 18/3 waterproof cable, cable clamp, and waterproof cable gland entry into housing. A separate weatherproof single gang wiring box for power supply must be provided (by contractor).

Finish: Machined #4 stainless steel. Custom colors are not available.

U.L. Listed, suitable for wet locations and vehicle drive over. Protection class: IP 67.

Note: A foundation and proper drainage must be supplied by the contractor. These luminaires are designed to bear pressure loads up to 11,000 lbs. from vehicles with pneumatic tires. The luminaires must not be used for traffic lanes where they are subject to horizontal pressure from vehicles braking, accelerating and changing direction.



Asymmetrical floodlights · **clear** safety glass

	Lamp	β	Lumen	T	A	B	C
8642P	1 24 W FL T5 HO	65 x 92°	2000	40°	4 5/8 x 25	4 3/16 x 24 5/8	4 15/16

β = Beam angle

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Light building elements · STAINLESS STEEL

Post construction: Seamless stainless steel tubing with a machined top insert and a machined base internally welded into an assembly.

Lamp enclosure: Seamless stainless steel tubing with machined diffuser opening, louvers or slot. The lamp enclosure is secured to the post with two captive stainless steel set screws. One piece, handblown three-ply opal glass. Fully gasketed using high temperature silicone rubber O-ring gaskets. Free space of at least dimension 'B' is required above the luminaires for relamping.

Electrical: Lampholders; 2G11 rated 75 W, 250 V. Ballasts are electronic, universal voltage 120 V through 277 V.

Anchor base: Heavy gauge stainless steel with four (4) threaded stainless steel studs which accept BEGA #896 A anchorage kit (supplied).

Finish: #4 brushed stainless steel. Stainless steel requires regular cleaning and maintenance, much like household appliances, to maintain its luster and to prevent tarnishing or the appearance of rust like stains.

U.L. listed, suitable for wet locations. Protection class IP 65.

Type: S02
BEGA Product: 8989P
Project: UCI NAT SCI II
Voltage: 277V
Color: STEEL
Options:
Modified:

Light building elements · **unshielded** — Light sector 140°/140°

	Lamp	Lumen	A	B	C	D	Anchorage
8989 P	1 39 W CF twin-4p	2900	4 3/8	31 1/2	98 1/2	8 7/8	**896 A**

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Eco-10 Overview

Eco-10 lighting management electronic dimming ballasts are designed to maximize the benefits of a lighting management system. Eco-10 offers 100% to 10% dimming, and is ideal for use in any space where saving energy is the primary goal of the design.

Eco-10, case type C
1.18 in. w (30 mm) x 1.00 in. h (25 mm) x 18.00 in. l (457 mm)

Eco-10, case type D
1.58 in. w (40 mm) x 1.00 in. h (25 mm) x 9.50 in. l (241 mm)

Eco-10, case type F
2.38 in. w (60 mm) x 1.50 in. h (38 mm) x 9.50 in. l (241 mm)

Features

- Continuous, flicker-free dimming from 100% to 10%
- Standard 3-wire line-voltage phase-control technology for consistent fixture-to-fixture dimming performance
- Models available for T5 and T5-HO linear, T8 linear and U-bent, and T5 twin-tube lamps
- Programmed rapid start design preheats lamp cathodes before applying full arc voltage
- Lamps turn on to any dimmed level without flashing to full brightness
- Low harmonic distortion throughout the entire dimming range maintains power quality
- Frequency of operation ensures that ballast does not interfere with infrared devices operating between 38 and 42 kHz
- Inrush current limiting circuitry eliminates circuit breaker tripping, switch arcing, and relay failure
- End-of-lamp-life protection circuitry (for T5 and T5-HO linear models) ensures safe operation throughout entire lamp life cycle
- For linear lamps, ballasts maintain consistent light output for different lamp lengths, ensuring uniformity
- Ultra-quiet operation
- Protected from miswires of any input power to control lead
- 100% compatible with all Lutron 3-wire fluorescent controls
- 100% performance tested at factory
- Designed and assembled in the USA
- 5-year limited warranty with Lutron field service commissioning (3-year standard warranty) from date of purchase

Specifications

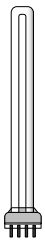
Performance

- Dimming Range: 100% to 10% measured relative light output
- Lamp Starting: programmed rapid start
- Minimum Lamp Starting Temperature: 10 °C (50 °F)
- Ambient Temperature Operating Range: 10 °C (50 °F) to 60 °C (140 °F)
- Relative Humidity: maximum 90% non-condensing
- Operating Voltage: 120 V or 277 V at 60Hz
- Lamp Current Crest Factor: less than 1.7
- Lamp Flicker: none visible
- Light Output Variation: constant ±2% light output for line voltage variations of ±10%
- Lamp Life: average lamp life meets or exceeds rating of lamp manufacturer
- Ballast Factor: greater than .85 for T8 and T5 twin-tube lamps, equal to 1.0 for T5 lamps
- Power Factor: greater than .95
- Total Harmonic Distortion (THD): less than 20%
- Maximum Inrush Current: 7 amps per ballast at 120 V, 3 amps per ballast at 277 V
- Sound Rating: Inaudible in a 27 dBa ambient
- Maximum Ballast Case Temperature: 75 °C (167 °F)

Standards

- UL Listed (evaluated to the requirements of UL935)
- CSA certified (evaluated to the requirements of C22.2 No. 74) – specific model numbers only
- Class P thermally protected
- Meets ANSI C82.11 High Frequency Ballast Standard
- Meets FCC Part 18 Non-Consumer requirements for EMI/RFI emissions
- Meets ANSI C62.41 Category A surge protection standards up to and including 4 kV
- Manufacturing facilities employ ESD reduction practices that comply with the requirements of ANSI/ESD S20.20
- Lutron Quality Systems registered to ISO 9001.2000

Eco-10 Ballast Models

Lamp Type	Lamp Watts (length)	Lamps per ballast	Case Type	120 VOLTS Ballast Current (amps)	120 VOLTS **Eco-10** Model Number	277 VOLTS Ballast Current (amps)	277 VOLTS **Eco-10** Model Number
T5 linear  5/8 in. diameter	14 W (22 in.)	1	C	.17	E 3 T514 C 120 1	.08	E 3 T514 C 277 1
		2	C	.32	E 3 T514 C 120 2	.14	E 3 T514 C 277 2
	21 W (34 in.)	1	C	.25	E 3 T521 C 120 1	.11	E 3 T521 C 277 1
		2	C	.43	E 3 T521 C 120 2	.19	E 3 T521 C 277 2
	28 W (45.3 in.)	1	C	.30	ECO-T528-120-1	.14	ECO-T528-277-1
		2	C	.55	ECO-T528-120-2	.25	ECO-T528-277-2
T5-HO linear high output  5/8 in. diameter	24 W (21.5 in.)	1	C	.26	ECO-T524-120-1	.13	ECO-T524-277-1
		2	C	.45	ECO-T524-120-2	.20	ECO-T524-277-2
	39 W (33.4 in.)	1	C	.38	ECO-T5H39-120-1	.17	ECO-T5H39-277-1
		2	C	.76	ECO-T5H39-120-2	.31	ECO-T5H39-277-2
	54 W (45.3 in.)	1	C	.58	ECO-T554-120-1	.25	ECO-T554-277-1
		2	C	1.1	ECO-T554-120-2	.45	ECO-T554-277-2
T5 Twin-Tube  5/8 in. diameter	36/39 W (16 in.)	1	F	.33	ECO-T539-120-1*	.14	ECO-T539-277-1*
		2	F	.58	ECO-T539-120-2*	.25	ECO-T539-277-2*
		3	F	.85	ECO-T539-120-3*	.35	ECO-T539-277-3*
	40 W (22 in.)	1	F	.33	ECO-T540-120-1*	.14	ECO-T540-277-1*
		2	F	.61	ECO-T540-120-2*	.25	ECO-T540-277-2*
		3	F	.88	ECO-T540-120-3*	.38	ECO-T540-277-3*
	50 W (22 in.)	1	F	.38	ECO-T550-120-1*	.17	ECO-T550-277-1*
		2	F	.69	ECO-T550-120-2*	.32	ECO-T550-277-2*

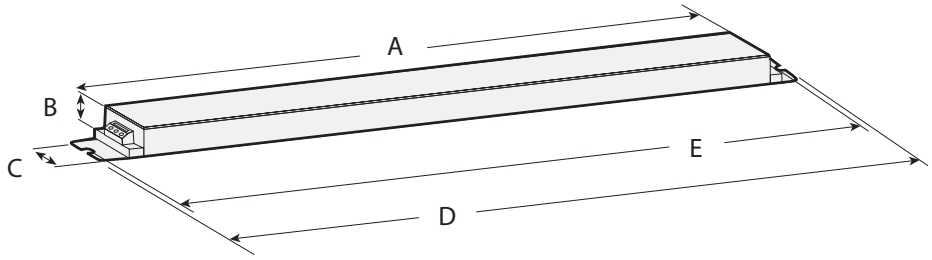
*UL certified only

Eco-10 Ballast Models continued ...

Lamp Type				120 VOLTS		277 VOLTS	
	Lamp Watts (length)	Lamps per ballast	Case Type	Ballast Current (amps)	**Eco-10** Model Number	Ballast Current (amps)	**Eco-10** Model Number
T8 linear and U-bent  1 in. diameter	17 W (24 in.)	1	F	.19	ECO-T817-120-1	.08	ECO-T817-277-1
		2	F	.31	ECO-T817-120-2	.15	ECO-T817-277-2
		3	F	.43	ECO-T817-120-3	.20	ECO-T817-277-3
	25 W (36 in.)	1	F	.24	ECO-T825-120-1	.12	ECO-T825-277-1
		2	F	.43	ECO-T825-120-2	.19	ECO-T825-277-2
	32 W (48 in.)	1	C	- -	- -	- -	- -
		1	D	.34	ECO-T832-120-1-L	.14	ECO-T832-277-1-L
		1	D	.34	ECO-T832-120-1-T	.14	ECO-T832-277-1-T
		1	F	- -	- -	.15	ECO-T832-277-1
		2	C	- -	- -	- -	- -
		2	D	.53	ECO-T832-120-2-L	.23	ECO-T832-277-2-L
		2	D	.53	ECO-T832-120-2-T	.23	ECO-T832-277-2-T
		2	F	- -	- -	.22	ECO-T832-277-2
		3	F	.82	ECO-T832-120-3	.35	ECO-T832-277-3

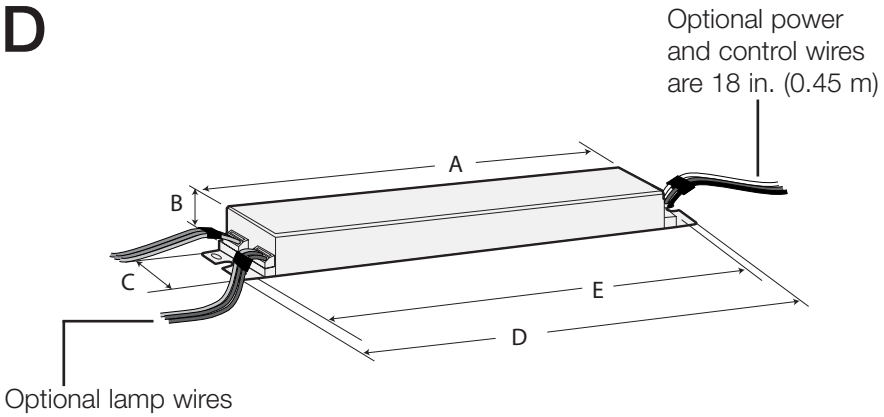
Eco-10 Case Dimensions

C



A 16.12 in. (409 mm)
B 1.00 in. (25 mm)
C 1.18 in. (30 mm)
D 18.00 in. (457 mm)
E 17.70 in. (450 mm)
(mounting centers)

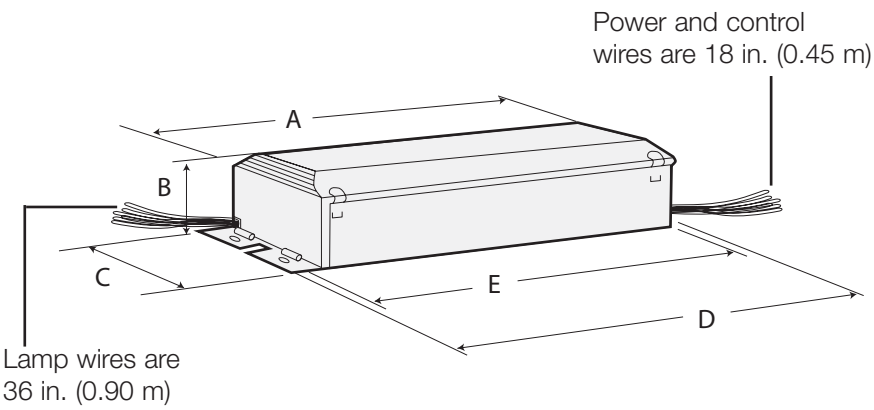
D



A 7.13 in. (181 mm)
B 1.00 in. (25 mm)
C 1.58 in. (40 mm)
D 9.50 in. (241 mm)
E 8.91 in. (226 mm)
(slot mounting centers)

If using four hole mount, mounting centers are 9.00" (229 mm) x 1.06 in. (27 mm).

F

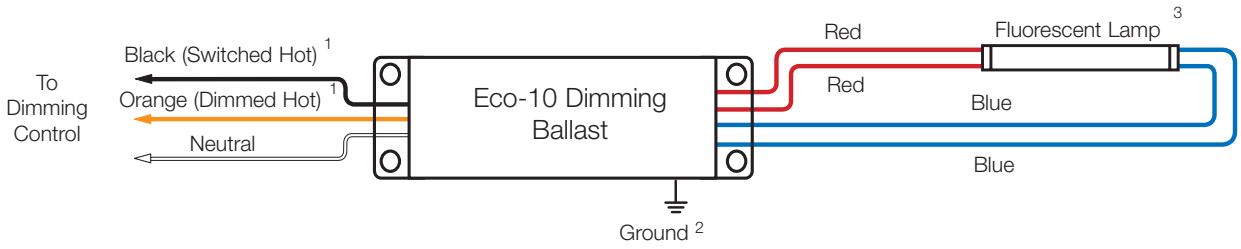


A 8.30 in. (211 mm)
B 1.50 in. (38 mm)
C 2.38 in. (60 mm)
D 9.50 in. (241 mm)
E 8.91 in. (226 mm)
(slot mounting centers)

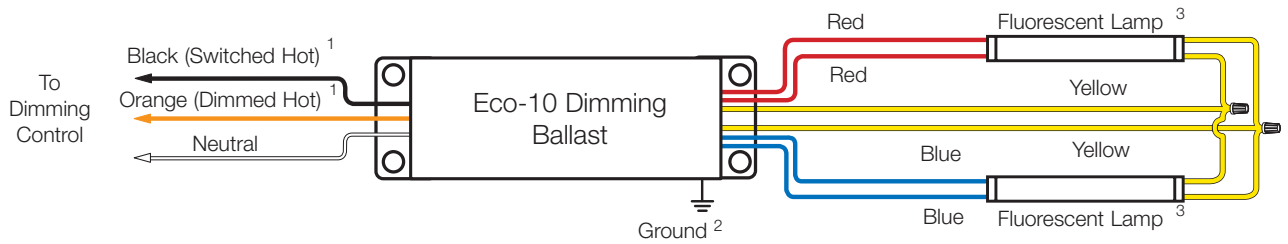
If using four hole mount, mounting centers are 9.21 in. (234 mm) x 1.70 in. (43 mm).

Eco-10 Wiring Diagrams

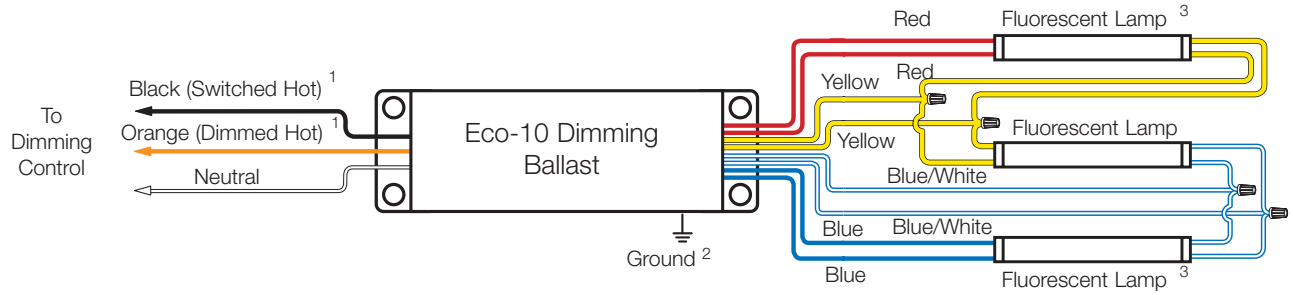
One T5 or T8 lamp



Two T5 or T8 lamps



Three T8 lamps

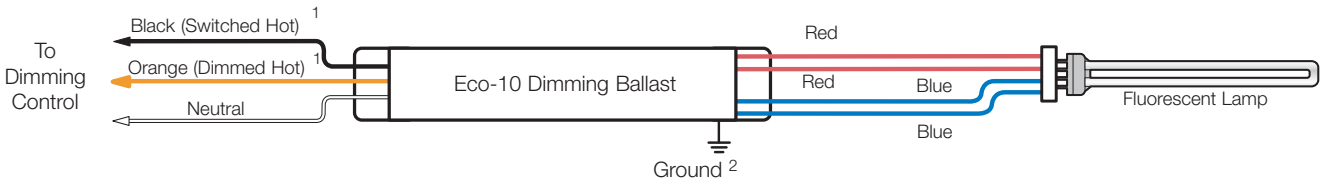


[1] Dimming control wire colors do not necessarily match ballast wire colors (e.g. control 'dimmed hot' may be yellow, and ballast 'dimmed hot' may be orange. Wire colors shown are for Lutron ballasts and controls only.
[2] Ballast and lighting fixture must be effectively grounded.
[3] Includes 31 W T8 U-bent lamps

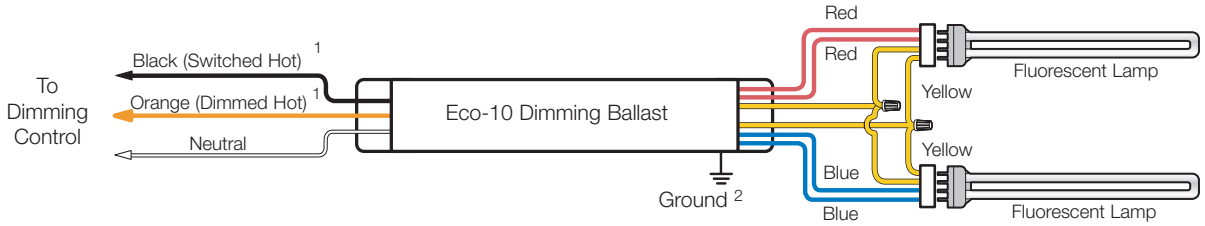
Note: For T5 and T8 lamps, maximum lamp-to-ballast wire length is 7 feet (2 m).

Eco-10 Wiring Diagrams continued

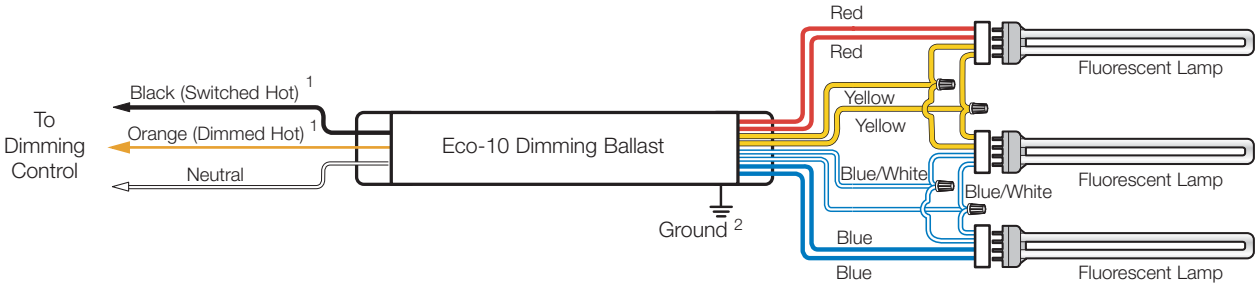
One T5 twin-tube lamp



Two T5 twin-tube lamps



Three T5 twin-tube lamps



[1] Dimming control wire colors do not necessarily match ballast wire colors (e.g. control 'dimmed hot' may be yellow, and ballast 'dimmed hot' may be orange). Wire colors shown are for Lutron ballasts and controls only.
[2] Ballast and lighting fixture must be effectively grounded.

Note: For T5 twin-tube lamps, maximum lamp-to-ballast wire length is 3 feet (1 m).

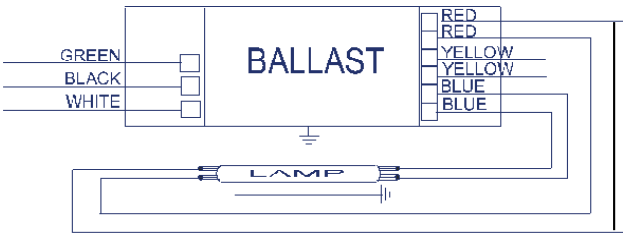
PHILIPS ADVANCE

ICN-2S54@277V	
Brand Name	CENTIUM T5
Ballast Type	Electronic
Starting Method	Programmed Start
Lamp Connection	Series/Parallel
Input Voltage	120-277
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.
* FT36W/2G11	1	36	-20/-29	0.18	46	1.22	20	0.96	1.7	2.65
FT36W/2G11	2	36	-20/-29	0.32	86	1.20	10	0.98	1.7	1.40

Wiring Diagram



For 1 lamp operation, do not use yellow leads

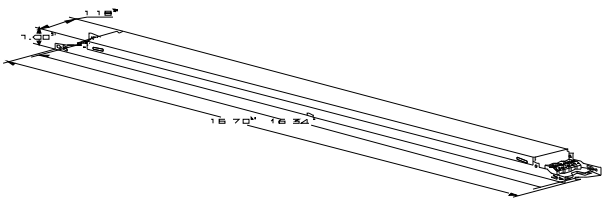
The wiring diagram that appears above is for the lamp type denoted by the asterisk (*)

Standard Lead Length (inches)

	in.	cm.
Black	31	78.7
White	31	78.7
Blue	28	71.1
Red	28	71.1
Yellow	48	121.9
Gray		0
Violet		0

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

Enclosure



Enclosure Dimensions

OverAll (L)	Width (W)	Height (H)	Mounting (M)
16.70 "	1.18 "	1.00 "	16.34 "
16 7/10	1 9/50	1	16 17/50
42.4 cm	3 cm	2.5 cm	41.5 cm

Revised 03/11/2009

Data is based upon tests performed by Philips Lighting Electronics N.A. in a controlled environment and is 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.

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ICN-2S54@277V	
Brand Name	CENTIUM T5
Ballast Type	Electronic
Starting Method	Programmed Start
Lamp Connection	Series/Parallel
Input Voltage	120-277
Input Frequency	50/60 HZ
Status	Active

Electrical Specifications

Notes:

Section I - Physical Characteristics

1.1 Ballast shall be physically interchangeable with standard electromagnetic or standard electronic ballasts, where applicable.

1.2 Ballast shall be provided with integral leads or poke-in wire trap connectors color-coded per ANSI C82.11.

Section II - Performance Requirements

2.1 Ballast shall be Programmed Start.

2.2 Ballast shall contain auto restart circuitry in order to restart lamps without resetting power.

2.3 Ballast shall operate from 50/60 Hz input source of _____ (120V through 277V or 347V through 480V) with sustained variations of +/- 10% (voltage and frequency) with no damage to the ballast.

2.4 Ballast shall be high frequency electronic type and operate lamps at a frequency above 42 kHz to avoid interference with infrared devices and eliminate visible flicker.

2.5 Ballast shall have a Power Factor greater than 0.98 for primary lamp.

2.6 Ballast shall have a minimum ballast factor of 1.00 for primary lamp application.

2.7 Ballast shall provide for a Lamp Current Crest Factor of 1.7 or less in accordance with lamp manufacturer recommendations.

2.8 Ballast input current shall have Total Harmonic Distortion (THD) of less than 20% for Standard models and THD of less than 10% for Centium models when operated at nominal line voltage with primary lamp.

2.9 Ballast shall have a Class A sound rating.

2.10 Ballast shall have a minimum starting temperature of _____ {-18C (0F) or -29C (-20F)} for primary lamp. Consult lamp manufacturer for temperature versus light output characteristics.

2.11 Ballast shall provide Lamp EOL Protection Circuit.

2.12 Ballast shall tolerate sustained open circuit and short circuit output conditions without damage.

2.13 Ballast shall have a hi-low switching option when operating (4) F54T5/HO lamps to allow switching from 4-2 lamps, 3-2 lamps or 3-1 lamp.

2.14 Four-lamp ballast shall have semi-independent lamp operation.

Section III - Regulatory Requirements

3.1 Ballast shall not contain any Polychlorinated Biphenyl (PCB).

3.2 Ballast shall be Underwriters Laboratories (UL) listed, Class P and Type 1 Outdoor; and Canadian Standards Association (CSA) certified where applicable.

3.3 Ballast shall comply with ANSI C62.41 Category A for Transient protection.

3.4 Ballast shall comply with ANSI C82.11 where applicable.

3.5 Ballast shall comply with the requirements of the Federal Communications Commission (FCC) rules and regulations, Title 47 CFR part 18, Non-Consumer (Class A) for EMI/RFI (conducted and radiated).

3.6 Ballast shall comply with UL Type CC rating.

Section IV - Other

4.1 Ballast shall be manufactured in a factory certified to ISO 9002 Quality System Standards.

4.2 Ballast shall carry a five-year warranty from date of manufacture against defects in material or workmanship, including replacement, for operation at a maximum case temperature of 70C. Ballasts with a "90C" designation in their catalog number shall also carry a three-year warranty at a maximum case temperature of 90C.

4.3 Manufacturer shall have a fifteen-year history of producing electronic ballasts for the North American market.

Revised 03/11/2009

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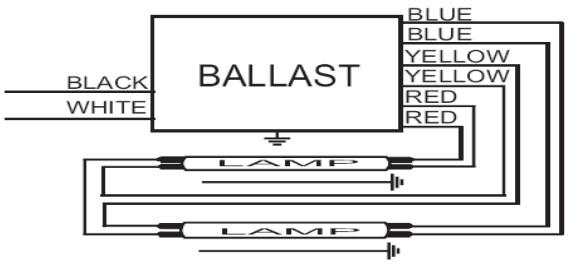
PHILIPS ADVANCE

ICN-2S28-N@277	
Brand Name	CENTIUM T5
Ballast Type	Electronic
Starting Method	Programmed Start
Lamp Connection	Series
Input Voltage	120-277
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.
F14T5	1	14	0/-18	0.07	17	1.07	10	0.98	1.7	6.29
F14T5	2	14	0/-18	0.12	33	1.04	10	0.98	1.7	3.15
F21T5	1	21	0/-18	0.10	25	1.06	10	0.98	1.7	4.24
F21T5	2	21	0/-18	0.18	49	1.02	10	0.98	1.7	2.08
F28T5	1	28	0/-18	0.12	31	1.05	10	0.98	1.7	3.39
* F28T5	2	28	0/-18	0.22	60	1.00	10	0.98	1.7	1.67

Wiring Diagram



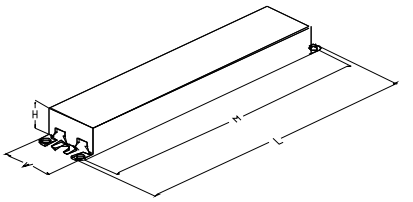
The wiring diagram that appears above is for the lamp type denoted by the asterisk (*)

Standard Lead Length (inches)

	in.	cm.
Black	23	58.4
White	23	58.4
Blue	27	68.6
Red	27	68.6
Yellow	42	106.7
Gray		0
Violet		0

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

Enclosure



Enclosure Dimensions

OverAll (L)	Width (W)	Height (H)	Mounting (M)
9.5 "	1.3 "	1.0 "	8.9 "
9 1/2	1 3/10	1	8 9/10
24.1 cm	3.3 cm	2.5 cm	22.6 cm

Revised 03/03/2009

Data is based upon tests performed by Philips Lighting Electronics N.A. in a controlled environment and is 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.

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ICN-2S28-N@277	
Brand Name	CENTIUM T5
Ballast Type	Electronic
Starting Method	Programmed Start
Lamp Connection	Series
Input Voltage	120-277
Input Frequency	50/60 HZ
Status	Active

Electrical Specifications

Notes:

Section I - Physical Characteristics

1.1 Ballast shall be physically interchangeable with standard electromagnetic or standard electronic ballasts, where applicable.

1.2 Ballast shall be provided with integral leads or poke-in wire trap connectors color-coded per ANSI C82.11.

Section II - Performance Requirements

2.1 Ballast shall be Programmed Start.

2.2 Ballast shall contain auto restart circuitry in order to restart lamps without resetting power.

2.3 Ballast shall operate from 50/60 Hz input source of _____ (120V through 277V or 347V through 480V) with sustained variations of +/- 10% (voltage and frequency) with no damage to the ballast.

2.4 Ballast shall be high frequency electronic type and operate lamps at a frequency above 42 kHz to avoid interference with infrared devices and eliminate visible flicker.

2.5 Ballast shall have a Power Factor greater than 0.98 for primary lamp.

2.6 Ballast shall have a minimum ballast factor of 1.00 for primary lamp application.

2.7 Ballast shall provide for a Lamp Current Crest Factor of 1.7 or less in accordance with lamp manufacturer recommendations.

2.8 Ballast input current shall have Total Harmonic Distortion (THD) of less than 20% for Standard models and THD of less than 10% for Centium models when operated at nominal line voltage with primary lamp.

2.9 Ballast shall have a Class A sound rating.

2.10 Ballast shall have a minimum starting temperature of _____ {-18C (0F) or -29C (-20F)} for primary lamp. Consult lamp manufacturer for temperature versus light output characteristics.

2.11 Ballast shall provide Lamp EOL Protection Circuit.

2.12 Ballast shall tolerate sustained open circuit and short circuit output conditions without damage.

2.13 Ballast shall have a hi-low switching option when operating (4) F54T5/HO lamps to allow switching from 4-2 lamps, 3-2 lamps or 3-1 lamp.

2.14 Four-lamp ballast shall have semi-independent lamp operation.

Section III - Regulatory Requirements

3.1 Ballast shall not contain any Polychlorinated Biphenyl (PCB).

3.2 Ballast shall be Underwriters Laboratories (UL) listed, Class P and Type 1 Outdoor; and Canadian Standards Association (CSA) certified where applicable.

3.3 Ballast shall comply with ANSI C62.41 Category A for Transient protection.

3.4 Ballast shall comply with ANSI C82.11 where applicable.

3.5 Ballast shall comply with the requirements of the Federal Communications Commission (FCC) rules and regulations, Title 47 CFR part 18, Non-Consumer (Class A) for EMI/RFI (conducted and radiated).

3.6 Ballast shall comply with UL Type CC rating.

Section IV - Other

4.1 Ballast shall be manufactured in a factory certified to ISO 9002 Quality System Standards.

4.2 Ballast shall carry a five-year warranty from date of manufacture against defects in material or workmanship, including replacement, for operation at a maximum case temperature of 70C. Ballasts with a "90C" designation in their catalog number shall also carry a three-year warranty at a maximum case temperature of 90C.

4.3 Manufacturer shall have a fifteen-year history of producing electronic ballasts for the North American market.

Revised 03/03/2009

PHILIPS LIGHTING ELECTRONICS N.A.
10275 WEST HIGGINS ROAD · ROSEMONT, IL 60018
Tel: 800-322-2086 · Fax: 888-423-1882 · www.philips.com/advance
Customer Support/Technical Service: 800-372-3331 · OEM Support: 866-915-5886

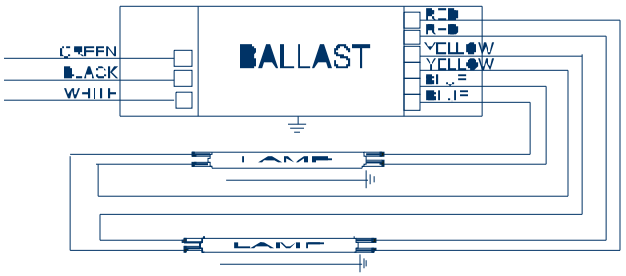
PHILIPS
ADVANCE

ICN-2S24@277V	
Brand Name	CENTIUM T5
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.
F24T5/HO	1	24	0/-18	0.10	27	1.02	10	0.98	1.7	3.78
* F24T5/HO	2	24	0/-18	0.19	52	1.00	10	0.98	1.7	1.92
F39T5/HO	1	39	0/-18	0.15	40	0.90	10	0.98	1.7	2.25
FC12T5	1	40	0/-18	0.15	40	0.84	10	0.98	1.7	2.10
FC9T5	1	22	0/-18	0.10	27	1.02	10	0.98	1.7	3.78
FC9T5	2	22	0/-18	0.19	52	1.00	10	0.98	1.7	1.92
FT24W/2G11	1	24	0/-18	0.10	27	1.02	10	0.98	1.7	3.78
FT24W/2G11	2	24	0/-18	0.19	52	1.00	10	0.98	1.7	1.92
FT36W/2G11	1	36	0/-18	0.13	34	0.90	10	0.98	1.7	2.65
FT40W/2G11/RS	1	40	0/-18	0.17	47	1.00	10	0.98	1.7	2.13

Wiring Diagram



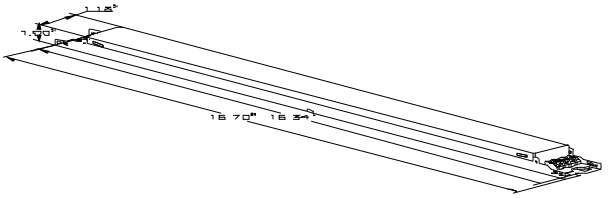
The wiring diagram that appears above is for the lamp type denoted by the asterisk (*)

Standard Lead Length (inches)

	in.	cm.
Black	0	0
White	0	0
Blue	0	0
Red	0	0
Yellow	0	0
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	0

Enclosure



Enclosure Dimensions

OverAll (L)	Width (W)	Height (H)	Mounting (M)
16.70 "	1.18 "	1.00 "	16.34 "
16 7/10	1 9/50	1	16 17/50
42.4 cm	3 cm	2.5 cm	41.5 cm

Revised 09/01/2004

Data is based upon tests performed by Philips Lighting Electronics N.A. in a controlled environment and is 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.

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PHILIPS ADVANCE

ICN-2S24@277V	
Brand Name	CENTIUM T5
Ballast Type	Electronic
Starting Method	Programmed Start
Lamp Connection	Series
Input Voltage	277
Input Frequency	50/60 HZ
Status	Active

Electrical Specifications

Notes:

Section I - Physical Characteristics

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3.4 Ballast shall comply with ANSI C82.11 where applicable.

3.5 Ballast shall comply with the requirements of the Federal Communications Commission (FCC) rules and regulations, Title 47 CFR part 18, Non-Consumer (Class A) for EMI/RFI (conducted and radiated).

3.6 Ballast shall comply with UL Type CC rating.

Section IV - Other

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Revised 09/01/2004

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Customer Support/Technical Service: 800-372-3331 · OEM Support: 866-915-5886

9/4/2009

F28T5/841 ALTO TG 1LP

Product family description

Product data	
Product Number	166744
Full product name	F28T5/841 ALTO TG 1LP
Ordering Code	F28T5/841 TG
Pack type	1 Lamp
Pieces per Sku	1
Skus/Case	40
Pack UPC	046677166748
EAN2US	
Case Bar Code	50046677166743
Successor Product number	
System Description	High Efficiency
Base	Miniature Bipin
Base Information	Green [Green Base]
Bulb	T5 [16mm]
Packing Type	1LP [1 Lamp]
Packing Configuration	40
Rated Avg. Life	24000 hr
Type	F28T5
Feature	ALTO®
Ordering Code	F28T5/841 TG
Pack UPC	046677166748
Case Bar Code	50046677166743
Watts	28W
Lamp Wattage EL	28.0 W
Dimmable	Yes
Color Code	841 [CCT of 4100K]
Color Rendering Index	85 Ra8

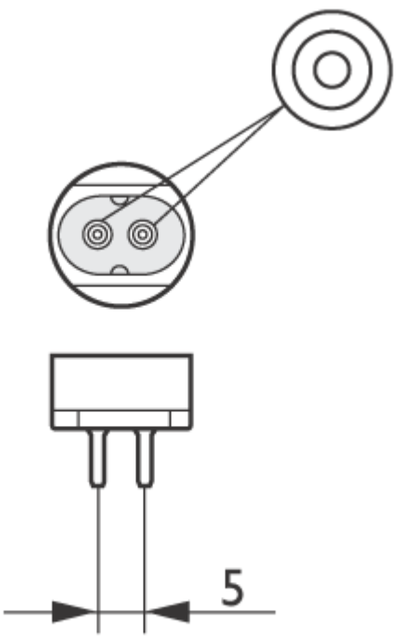
A47

PHILIPS

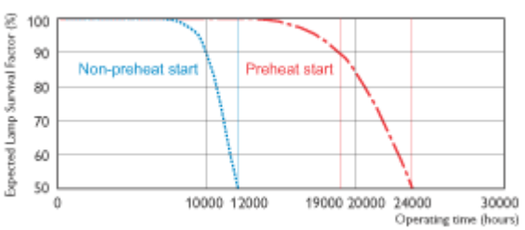
9/4/2009

Product data	
Color Designation	841
Color Description	na [-]
Color Temperature	4000 K
Initial Lumens	- Lm
Overall Length C	1163.2 mm
Diameter D	17 mm
Special Note	TuffGuard™ [TuffGuard Coated]
Product Number	166744

TL5 HE

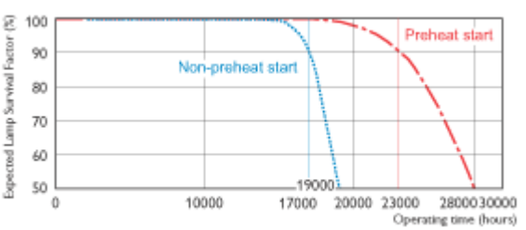


Base Miniature Bipin



Life Expectancy 3h cycle

TL5 HE



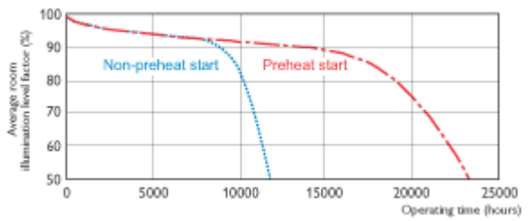
Life Expectancy 12h cycle

TL5 HE

A48

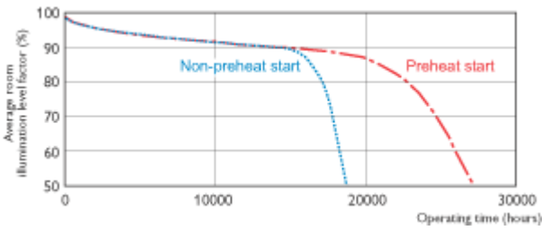
PHILIPS

9/4/2009



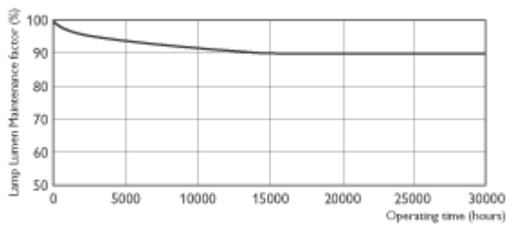
Service Life 3h cycle

TL5 HE



Service Life 12h cycle

TL5 HE



TL5 HE

9/4/2009

PL-C ALTO 13W/841 G24q-1 /4P 1CT

Product family description

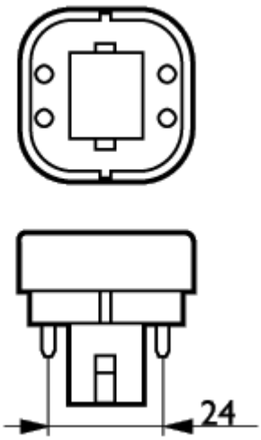
Product data	
Product Number	383281
Full product name	PL-C ALTO 13W/841 G24q-1 /4P 1CT
Ordering Code	PL-C 13W/841/4P/ALTO
Pack type	1 Lamp in a Folding Carton
Pieces per Sku	1
Skus/Case	50
Pack UPC	046677240004
EAN2US	
Case Bar Code	60046677240006
Successor Product number	
Base	G24q-1
Base Information	4P
Execution	/4P [4 Pins]
Packing Type	1CT [1 Lamp in a Folding Carton]
Packing Configuration	5X10BOX
Avg. Life	10000 hr
Rated Avg. Life	12000 hr
Ordering Code	PL-C 13W/841/4P/ALTO
Pack UPC	046677240004
Case Bar Code	60046677240006
Watts	13W
Lamp Wattage EL	12.5 W
Dimmable	Yes
Mercury (Hg) Content	- mg
Color Code	840 [CCT of 4000K]
Color Rendering Index	82 Ra8
Color Designation	Cool White

PHILIPS

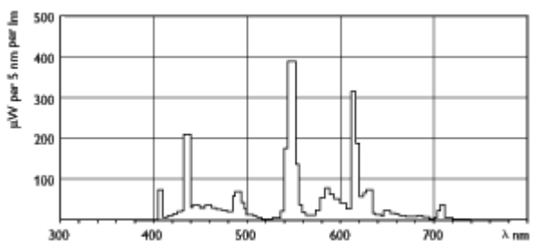
9/4/2009

Product data	
Color Description	840 Cool White
Color Temperature	4000 K
Initial Lumens	900 Lm
Initial Lumens	900 Lm
Overall Length C	142.9 mm
Diameter D	27.1 mm
Diameter D1	27.1 mm
Product Number	383281

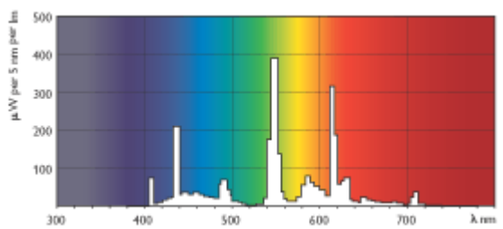
PL-C 13W



Base G24q-1



PL-C/840



PL-C/840

PL-C

SoLux 4100K 35W Specs.

Technical Data SoLux 4100 Kelvin

PHYSICAL
Bulb Type: MR 16
Cover Glass: Yes
Bulb Diameter: 2" (50mm)
Maximum Overall Length: 1 3/4 " (45 mm
Base 2 pin / GX5.3

ELECTRICAL
Watts: 35
Volts: 12
Filament. C-8
Burning Position: Any

LIGHT
Life: 4000 Hrs.
Color Temperature: 4100 Kelvin
Color Rendition Index. 98+ C.R.I.

IR EMISSION
56 % Less Than
Standard MR16 50W

UV VALUES
UV : 9.75 Microwatt / Lumen
UVA: 9.39 Microwatt / Lumen (380-315 nm)
UVB: 0.36 Microwatts / Lumen (315-280nm)

CANDLEPOWER
#35011 (10°) = 7897
#35012 (17°) = 2782
35014 (24°) = 1701
35013 (36°) = 1048

Part Number 35011 35012 35014 35013

10°						17°				24°				36°			
Distance		**Beam Diameter**		**Illuminance**		**Beam Diameter**		**Illuminance**		**Beam Diamter**		**Illuminance**		**Beam Diameter**		**Illuminance**	
Feet	Meters	Feet	Meters	fc	Lux	Feet	Meters	fc	Lux	Feet	Meters	fc	Lux	Feet	Meters	fc	Lux
2	0.6	0.35	0.11	2038.7	21936.1	0.60	0.20	718.2	7727.8	0.90	0.26	439.1	4725.0	1.30	0.40	270.5	2911.1
4	1.2	0.70	0.21	509.7	5484.0	1.20	0.40	179.5	1931.9	1.70	0.52	109.8	1181.3	2.60	0.80	67.6	727.8
6	1.8	1.05	0.32	226.5	2437.3	1.80	0.55	79.8	858.6	2.60	0.78	48.8	525.0	3.90	1.20	30.1	323.5
8	2.4	1.40	0.43	127.4	1371.0	2.40	0.73	44.9	483.0	3.40	1.04	27.4	295.3	5.20	1.60	16.9	181.9
10	3.0	1.75	0.53	81.5	877.4	3.00	0.91	28.7	309.1	4.30	1.30	17.6	189.0	6.50	2.00	10.8	116.4

Tailored Lighting Inc.
1-800-254-4487

9/4/2009

PL-T 18W/841/4P 1CT

Product family description
PL-T Triple 4pin Fluorescent Lamp with Amalgam.

Features/Benefits

- ALTO® Lamp Technology - Passes EPA's TCLP test for non-hazardous waste.
- Utilizes amalgam technology to provide > 90% of rated lumens in ambient temperatures from 23F to 130F.
- Triple tube design available in 18, 26, 32, and 42W.
- Excellent Color Rendering - 82 Color Rendering Index (CRI).
- Broad Range of Color Temperature - Available in 2700, 3000, 3500 and 4100K.
- Dimmable - PL-T 4-pin lamps may be used with electronic dimming ballasts.
- Long Life - 12,000 hours.
- Energy Saving - Designed for use with electronic ballasts for lower operating costs and flicker-free starting.

Applications

- Ideal for downlights and medium bay multi-lamp fixtures for general lighting.

Notes

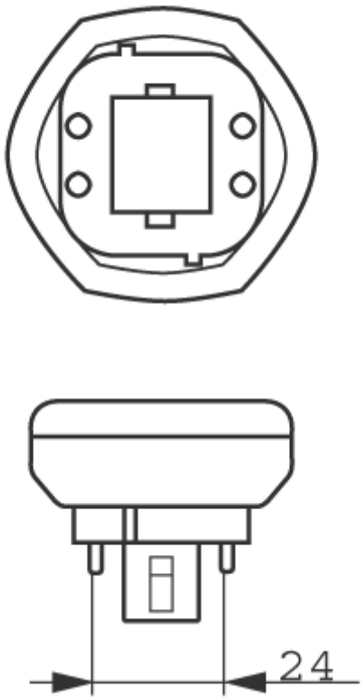
- Rated average life under specified test conditions with lamps turned off and restarted no more frequently than once every 3 operating hours. Lamp life is appreciably longer if lamps are started less frequently. (202)
- Approximate Initial Lumens. The lamp lumen output is based upon lamp performance after 100 hours of operating life, when the output is measured during operation on a reference ballast under standard laboratory conditions. (203)
- Design Lumens are the approximate lamp lumen output at 40% of the lamp's Rated Average Life. This output is based upon measurements obtained during lamp operation on a reference ballast under standard laboratory conditions. (208)

Product data	
Product Number	268227
Full product name	PL-T 18W/841/4P 1CT
Ordering Code	268227
Pack type	1 Lamp in a Folding Carton
Pieces per Sku	1
Skus/Case	12
Pack UPC	046677268220
EAN2US	

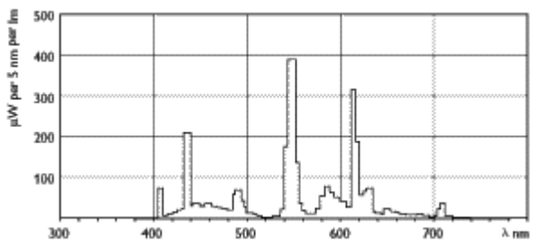
PHILIPS

Product data	
Case Bar Code	50046677268225
Successor Product number	
Base	GX24q-2
Base Information	4P
Execution	/4P [4 Pins]
Packing Type	1CT [1 Lamp in a Folding Carton]
Packing Configuration	12
Avg. Hrs. Life	16000 hr
Ordering Code	PL-T 18W/841/4P/ALTO
Pack UPC	046677268220
Case Bar Code	50046677268225
Watts	18W
Lamp Wattage EL	16.5 W
Lamp Voltage	100 V
Dimmable	Yes
Color Code	840 [CCT of 4000K]
Color Rendering Index	82 Ra8
Color Designation	Cool White
Color Description	840 Cool White
Color Temperature	4000 K
Initial Lumens	1200 Lm
Initial Lumens	1200 Lm
Overall Length C	116.4 mm
Diameter D	39.85 mm
Diameter D1	39.65 mm
Product Number	268227

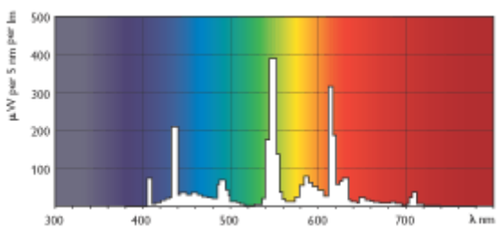
PL-T 18W



Base GX24q-2



PL-T/840



PL-T/840

9/4/2009

F35T5/841 TG

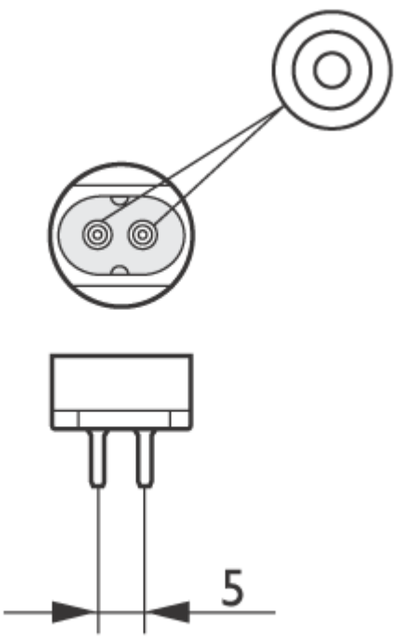
Product family description

Product data	
Product Number	167338
Full product name	F35T5/841 TG
Ordering Code	F35T5/841 TG
Pack type	1 Lamp
Pieces per Sku	1
Skus/Case	40
Pack UPC	046677167332
EAN2US	
Case Bar Code	50046677167337
Successor Product number	
System Description	High Efficiency
Base	Miniature Bipin
Base Information	Green Plate
Bulb	T5 [16mm]
Packing Type	1LP [1 Lamp]
Packing Configuration	40
Rated Avg. Life	24000 hr
Type	F35T5
Feature	na [Not Applicable]
Ordering Code	F35T5/841 TG
Pack UPC	046677167332
Case Bar Code	50046677167337
Watts	35W
Lamp Wattage EL	35 W
Dimmable	Yes
Color Code	841 [CCT of 4100K]
Color Rendering Index	85 Ra8

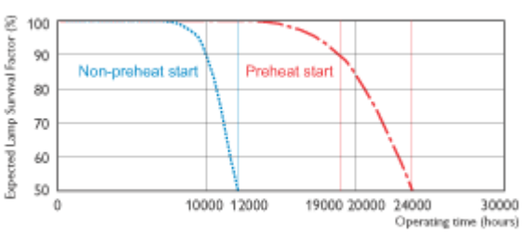
9/4/2009

Product data	
Color Designation	841
Color Description	na [-]
Color Temperature	4000 K
Initial Lumens	- Lm
Overall Length C	1463.2 mm
Diameter D	17 mm
Product Number	167338

TL5 HE

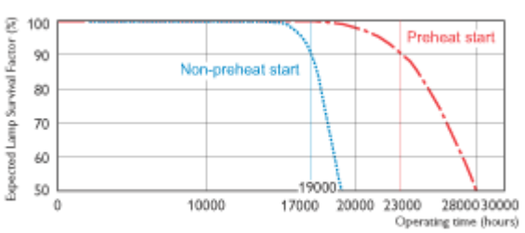


Base Miniature Bipin



Life Expectancy 3h cycle

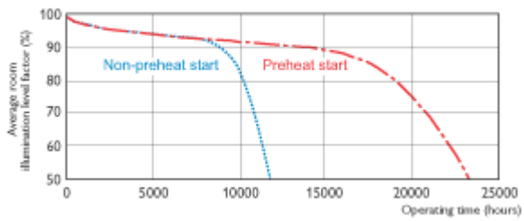
TL5 HE



Life Expectancy 12h cycle

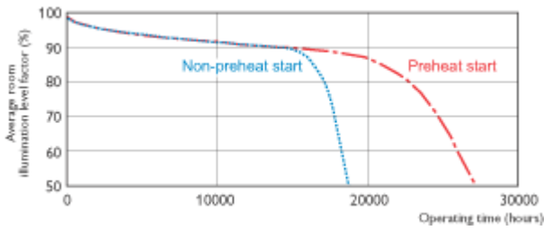
TL5 HE

PHILIPS



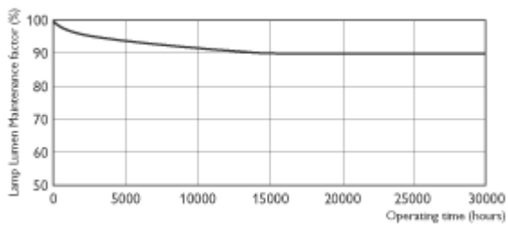
Service Life 3h cycle

TL5 HE



Service Life 12h cycle

TL5 HE



TL5 HE

9/4/2009

PL-T 32W/841/4P 1CT

Product family description
PL-T Triple 4pin Fluorescent Lamp with Amalgam.

Features/Benefits

- ALTO® Lamp Technology - Passes EPA's TCLP test for non-hazardous waste.
- Utilizes amalgam technology to provide > 90% of rated lumens in ambient temperatures from 23F to 130F.
- Triple tube design available in 18, 26, 32, and 42W.
- Excellent Color Rendering - 82 Color Rendering Index (CRI).
- Broad Range of Color Temperature - Available in 2700, 3000, 3500 and 4100K.
- Dimmable - PL-T 4-pin lamps may be used with electronic dimming ballasts.
- Long Life - 12,000 hours.
- Energy Saving - Designed for use with electronic ballasts for lower operating costs and flicker-free starting.

Applications

- Ideal for downlights and medium bay multi-lamp fixtures for general lighting.

Notes

- Rated average life under specified test conditions with lamps turned off and restarted no more frequently than once every 3 operating hours. Lamp life is appreciably longer if lamps are started less frequently. (202)
- Approximate Initial Lumens. The lamp lumen output is based upon lamp performance after 100 hours of operating life, when the output is measured during operation on a reference ballast under standard laboratory conditions. (203)
- Design Lumens are the approximate lamp lumen output at 40% of the lamp's Rated Average Life. This output is based upon measurements obtained during lamp operation on a reference ballast under standard laboratory conditions. (208)

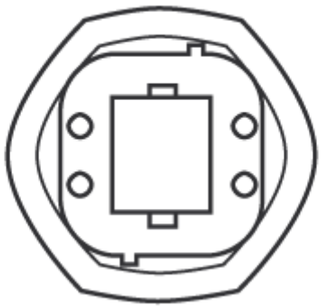
Product data	
Product Number	268722
Full product name	PL-T 32W/841/4P 1CT
Ordering Code	268722
Pack type	1 Lamp in a Folding Carton
Pieces per Sku	1
Skus/Case	12
Pack UPC	046677268725
EAN2US	

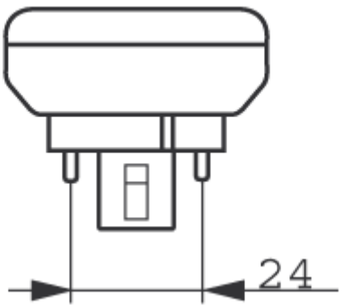
9/4/2009

Product data	
Case Bar Code	50046677268720
Successor Product number	
Base	GX24q-3
Base Information	4P
Execution	/4P [4 Pins]
Packing Type	1CT [1 Lamp in a Folding Carton]
Packing Configuration	12
Avg. Hrs. Life	16000 hr
Ordering Code	PL-T 32W/841/4P/ALTO
Pack UPC	046677268725
Case Bar Code	50046677268720
Watts	32W
Lamp Wattage EL	32.0 W
Lamp Voltage	- V
Dimmable	Yes
Color Code	840 [CCT of 4000K]
Color Rendering Index	82 Ra8
Color Designation	Cool White
Color Description	840 Cool White
Color Temperature	4000 K
Initial Lumens	- Lm
Initial Lumens	2400 Lm
Overall Length C	141.4 mm
Diameter D	39.85 mm
Diameter D1	39.65 mm
Product Number	268722

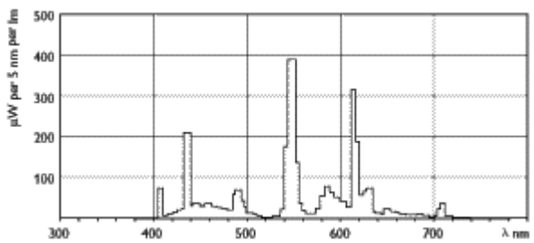
9/4/2009

PL-T 32W

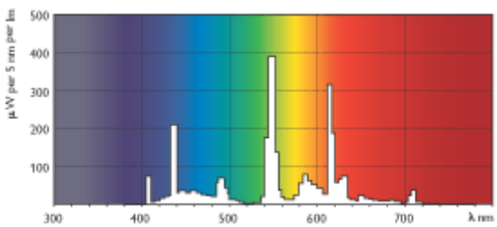




Base GX24q-3



PL-T/840



PL-T/840

9/4/2009

24W/841 Min Bipin T5 HO ALTO UNP

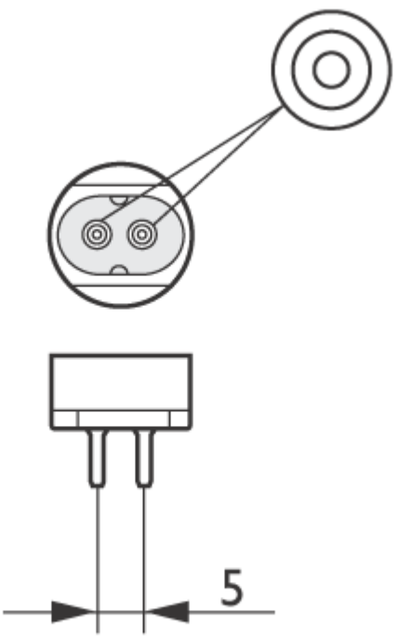
Product family description

Product data	
Product Number	290213
Full product name	24W/841 Min Bipin T5 HO ALTO UNP
Ordering Code	F24T5/841/HO/ALTO
Pack type	Unpacked
Pieces per Sku	1
Skus/Case	40
Pack UPC	046677290214
EAN2US	
Case Bar Code	50046677290219
Successor Product number	
System Description	High Output
Base	Miniature Bipin
Base Information	Green [Green Base]
Bulb	T5 [16mm]
Packing Type	UNP [Unpacked]
Packing Configuration	40
Rated Avg. Life	24000 hr
Type	na
Feature	na [Not Applicable]
Ordering Code	F24T5/841/HO/ALTO
Pack UPC	046677290214
Case Bar Code	50046677290219
Watts	24W
Lamp Wattage EL	22.5 W
Dimmable	Yes
Color Code	840 [CCT of 4000K]
Color Rendering Index	85 Ra8

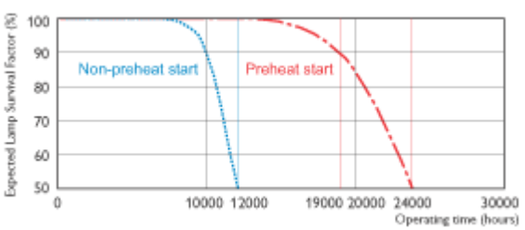
9/4/2009

Product data	
Color Designation	Cool White
Color Description	840 Cool White
Color Temperature	4000 K
Initial Lumens	- Lm
Overall Length C	563.2 mm
Diameter D	17 mm
Special packing	ALTO
Product Number	290213

TL5 HO

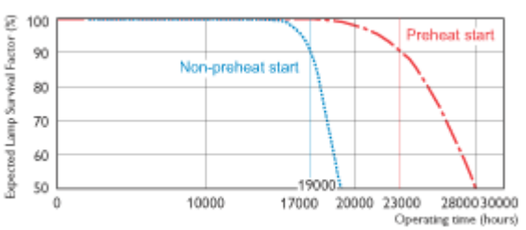


Base Miniature Bipin



Life Expectancy 3h cycle

TL5 HO

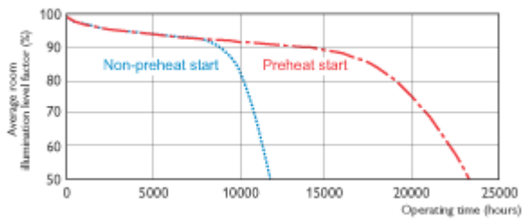


Life Expectancy 12h cycle

TL5 HO

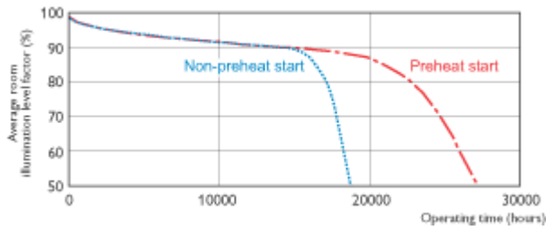
PHILIPS

9/4/2009



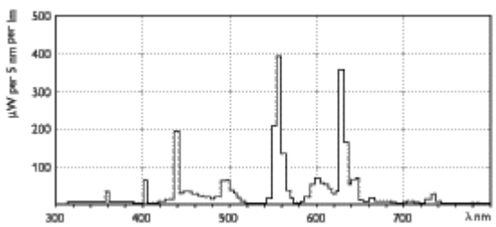
Service Life 3h cycle

TL5 HO

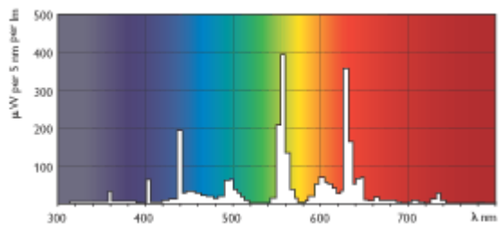


Service Life 12h cycle

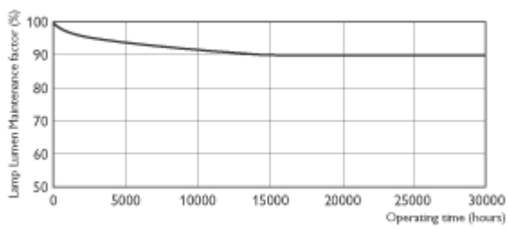
TL5 HO



TL5 HO/840



TL5 HO/840



TL5 HO

9/4/2009

PL-L 36W/830 2G11/4P 1CT

Product family description
PL-L Long 4pin Fluorescent Lamp.

Features/Benefits

- High lumen Output in a slim, compact size.
- Broad range of available wattages: 18, 24, 36, 40, 50, 55, and 80W.
- Excellent Color Rendering - 82 Color Rendering Index (CRI); 55W available with 91 CRI.
- Available in 3000, 3500 and 4100K; 55W available as 5000K only.
- Dimmable - PL-L 4-pin lamps may be used with electronic dimming ballasts.
- Long life: 15,000 to 20,000 hours average life depending on wattage.

Applications

- Ideal for commercial interior lighting applications in 2'x2' fixtures,1'x2' fixtures, and indirect lighting.

Notes

- Rated average life under specified test conditions with lamps turned off and restarted no more frequently than once every 3 operating hours. Lamp life is appreciably longer if lamps are started less frequently. (202)
- Approximate Initial Lumens. The lamp lumen output is based upon lamp performance after 100 hours of operating life, when the output is measured during operation on a reference ballast under standard laboratory conditions. (203)
- Design Lumens are the approximate lamp lumen output at 40% of the lamp's Rated Average Life. This output is based upon measurements obtained during lamp operation on a reference ballast under standard laboratory conditions. (208)

Product data	
Product Number	345116
Full product name	PL-L 36W/830 2G11/4P 1CT
Ordering Code	345116
Pack type	1 Lamp in a Folding Carton
Pieces per Sku	1
Skus/Case	25
Pack UPC	046677345112
EAN2US	
Case Bar Code	50046677345117
Successor Product number	

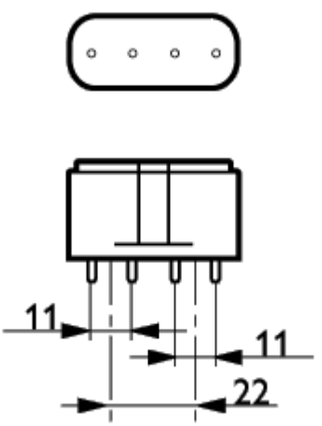
A65

PHILIPS

9/4/2009

Product data	
Base	2G11
Base Information	4P
Bulb Finish	Silicon
Execution	/4P [4 Pins]
Packing Type	1CT [1 Lamp in a Folding Carton]
Packing Configuration	25
Avg. Life	15000 hr
Rated Avg. Life	20000 hr
Ordering Code	PL-L 36W/830/4P
Pack UPC	046677345112
Case Bar Code	50046677345117
Watts	36W
Lamp Wattage EL	32.0 W
Dimmable	Yes
Color Code	830 [CCT of 3000K]
Color Rendering Index	82 Ra8
Color Designation	Warm White
Color Description	830 Warm White
Color Temperature	3000 K
Initial Lumens	2900 Lm
Initial Lumens	2900 Lm
Overall Length C	416.6 mm
Diameter D	38 mm
Diameter D1	18 mm
Product Number	345116

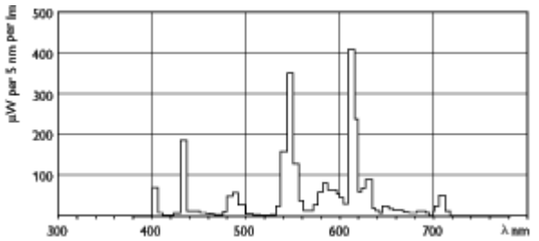
PL-L 36W



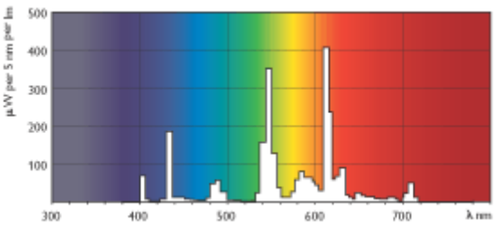
Base 2G11

PHILIPS

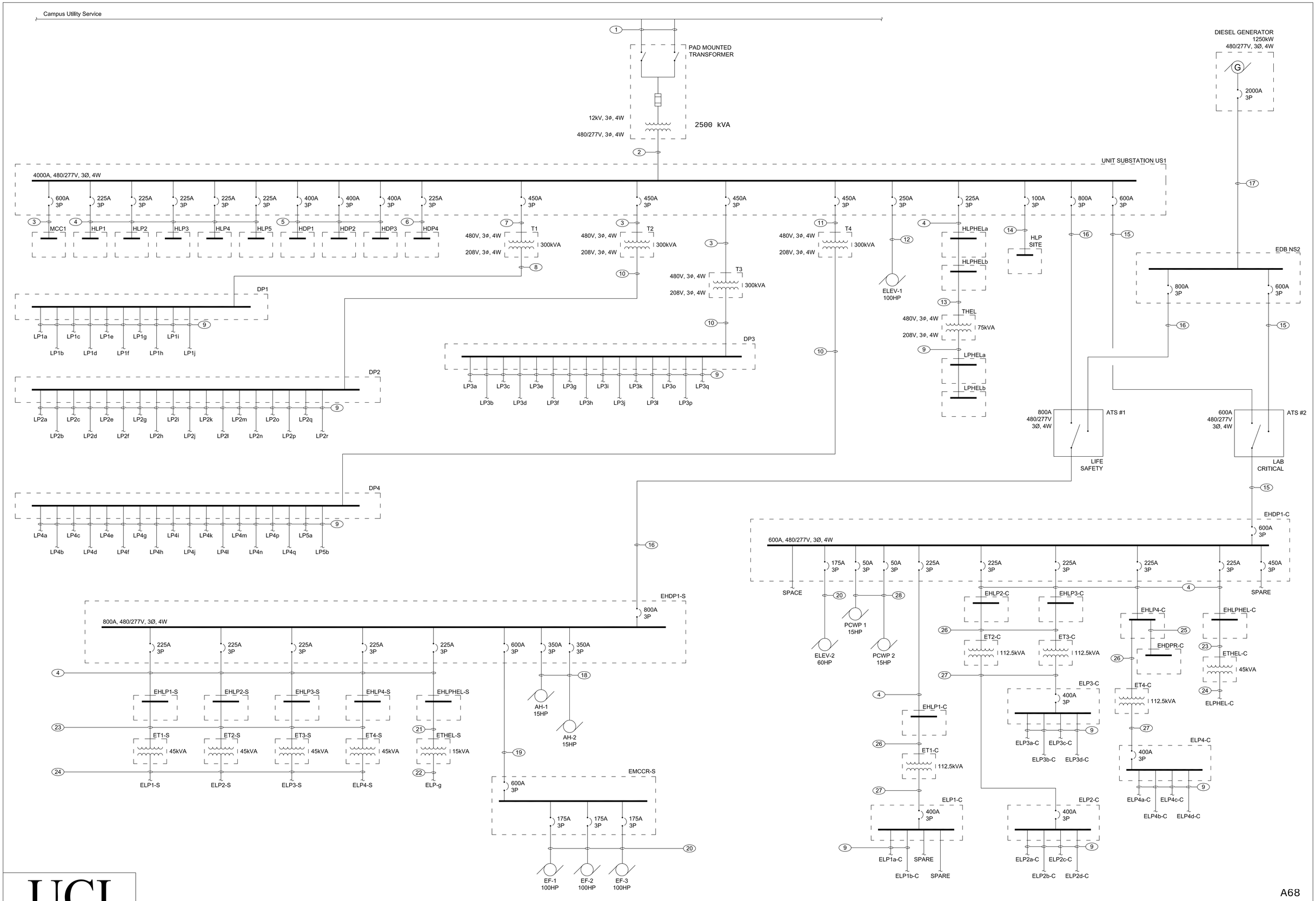
9/4/2009



PL-L/830



PL-L/830



A68

UCI	Student Name:	Electrical Consultant:	Assignment:	Date:	The Pennsylvania State University	Drawing Title:
Natural Sciences, Unit II Irvine, California	Grant W. Kightlinger Lighting/Electrical Option	Professor T. Dannerth, PE	THESIS SUMMARY REPORT	APRIL 7, 2009	Architectural Engineering AE 481 - Senior Thesis Project	Single-Line Diagram

FEEDER SCHEDULE

Tag	From	To	No. of Sets	Conduit (Per Set)		Conductors (Per Set)									Size of Overcurrent Protection
						Phase Conductors			Neutral Conductors			Ground Conductors			
				Size	Type	No.	Size	Type	No.	Size	Type	No.	Size	Type	
1	UTILITY	XFMR	2	5"	EMT	2	500KCMIL	CU THWN	1	500KCMIL	CU THWN	1	4/0	CU THWN	-
2	XFMR	US1	11	4"	EMT	3	500KCMIL	CU THWN	1	500KCMIL	CU THWN	1	500KCMIL	CU THWN	4000A
3	US1	MCC1	2	3"	EMT	2	350KCMIL	CU THWN	-	-	CU THWN	1	#1	CU THWN	600A
3	US1	T2	2	3"	EMT	2	350KCMIL	CU THWN	-	-	CU THWN	1	#1	CU THWN	600A
3	US1	T3	2	3"	EMT	2	350KCMIL	CU THWN	-	-	CU THWN	1	#1	CU THWN	600A
4	US1	HLP1	1	2.5"	EMT	3	4/0	CU THWN	1	4/0	CU THWN	1	#4	CU THWN	225A
4	US1	HLP2	1	2.5"	EMT	3	4/0	CU THWN	1	4/0	CU THWN	1	#4	CU THWN	225A
4	US1	HLP3	1	2.5"	EMT	3	4/0	CU THWN	1	4/0	CU THWN	1	#4	CU THWN	225A
4	US1	HLP4	1	2.5"	EMT	3	4/0	CU THWN	1	4/0	CU THWN	1	#4	CU THWN	225A
4	US1	HLP5	1	2.5"	EMT	3	4/0	CU THWN	1	4/0	CU THWN	1	#4	CU THWN	225A
4	US1	HPHELa	1	2.5"	EMT	3	4/0	CU THWN	1	4/0	CU THWN	1	#4	CU THWN	225A
4	EHDP1-C	EHLPHEL-C	1	2.5"	EMT	3	4/0	CU THWN	1	4/0	CU THWN	1	#4	CU THWN	225A
4	EHDP1-C	EHLP4-C	1	2.5"	EMT	3	4/0	CU THWN	1	4/0	CU THWN	1	#4	CU THWN	225A
4	EHDP1-C	EHLP3-C	1	2.5"	EMT	3	4/0	CU THWN	1	4/0	CU THWN	1	#4	CU THWN	225A
4	EHDP1-C	EHLP2-C	1	2.5"	EMT	3	4/0	CU THWN	1	4/0	CU THWN	1	#4	CU THWN	225A
4	EHDP1-C	EHLP1-C	1	2.5"	EMT	3	4/0	CU THWN	1	4/0	CU THWN	1	#4	CU THWN	225A
4	EHDP1-S	EHLPHEL-S	1	2.5"	EMT	3	4/0	CU THWN	1	4/0	CU THWN	1	#4	CU THWN	225A
4	EHDP1-S	EHLP1-S	1	2.5"	EMT	3	4/0	CU THWN	1	4/0	CU THWN	1	#4	CU THWN	225A
4	EHDP1-S	EHLP2-S	1	2.5"	EMT	3	4/0	CU THWN	1	4/0	CU THWN	1	#4	CU THWN	225A
4	EHDP1-S	EHLP3-S	1	2.5"	EMT	3	4/0	CU THWN	1	4/0	CU THWN	1	#4	CU THWN	225A
4	EHDP1-S	EHLP4-S	1	2.5"	EMT	3	4/0	CU THWN	1	4/0	CU THWN	1	#4	CU THWN	225A
5	US1	HDP1	1	3"	EMT	2	500KCMIL	CU THWN	-	-	CU THWN	1	#3	CU THWN	400A
5	US1	HDP2	1	3"	EMT	2	500KCMIL	CU THWN	-	-	CU THWN	1	#3	CU THWN	400A
5	US1	HDP3	1	3"	EMT	2	500KCMIL	CU THWN	-	-	CU THWN	1	#3	CU THWN	400A
6	US1	HDP4	1	2.5"	EMT	2	4/0	CU THWN	-	-	CU THWN	1	#4	CU THWN	225A
7	US1	T1	2	2.5"	EMT	2	300KCMIL	CU THWN	-	-	CU THWN	1	#1	CU THWN	500A
8	T1	DP1	3	4"	EMT	3	350KCMIL	CU THWN	1	350KCMIL	CU THWN	1	2/0	CU THWN	1000A
9	DP1	LP1a	1	2.5"	EMT	3	4/0	CU THWN	2	4/0	CU THWN	1	#4	CU THWN	225A
9	DP1	LP1b	1	2.5"	EMT	3	4/0	CU THWN	2	4/0	CU THWN	1	#4	CU THWN	225A
9	DP1	LP1c	1	2.5"	EMT	3	4/0	CU THWN	2	4/0	CU THWN	1	#4	CU THWN	225A
9	DP1	LP1d	1	2.5"	EMT	3	4/0	CU THWN	2	4/0	CU THWN	1	#4	CU THWN	225A
9	DP1	LP1e	1	2.5"	EMT	3	4/0	CU THWN	2	4/0	CU THWN	1	#4	CU THWN	225A
9	DP1	LP1f	1	2.5"	EMT	3	4/0	CU THWN	2	4/0	CU THWN	1	#4	CU THWN	225A
9	DP1	LP1g	1	2.5"	EMT	3	4/0	CU THWN	2	4/0	CU THWN	1	#4	CU THWN	225A
9	DP1	LP1h	1	2.5"	EMT	3	4/0	CU THWN	2	4/0	CU THWN	1	#4	CU THWN	225A
9	DP1	LP1i	1	2.5"	EMT	3	4/0	CU THWN	2	4/0	CU THWN	1	#4	CU THWN	225A
9	DP1	LP1j	1	2.5"	EMT	3	4/0	CU THWN	2	4/0	CU THWN	1	#4	CU THWN	225A
9	DP2	LP2a	1	2.5"	EMT	3	4/0	CU THWN	2	4/0	CU THWN	1	#4	CU THWN	225A
9	DP2	LP2b	1	2.5"	EMT	3	4/0	CU THWN	2	4/0	CU THWN	1	#4	CU THWN	225A
9	DP2	LP2c	1	2.5"	EMT	3	4/0	CU THWN	2	4/0	CU THWN	1	#4	CU THWN	225A
9	DP2	LP2d	1	2.5"	EMT	3	4/0	CU THWN	2	4/0	CU THWN	1	#4	CU THWN	225A
9	DP2	LP2e	1	2.5"	EMT	3	4/0	CU THWN	2	4/0	CU THWN	1	#4	CU THWN	225A
9	DP2	LP2f	1	2.5"	EMT	3	4/0	CU THWN	2	4/0	CU THWN	1	#4	CU THWN	225A
9	DP2	LP2g	1	2.5"	EMT	3	4/0	CU THWN	2	4/0	CU THWN	1	#4	CU THWN	225A
9	DP2	LP2h	1	2.5"	EMT	3	4/0	CU THWN	2	4/0	CU THWN	1	#4	CU THWN	225A
9	DP2	LP2i	1	2.5"	EMT	3	4/0	CU THWN	2	4/0	CU THWN	1	#4	CU THWN	225A

FEEDER SCHEDULE (CONTINUED)

Tag	From	To	No. of Sets	Conduit (Per Set)		Conductors (Per Set)									Size of Overcurrent Protection
						Phase Conductors			Neutral Conductors			Ground Conductors			
				Size	Type	No.	Size	Type	No.	Size	Type	No.	Size	Type	
9	DP2	LP2j	1	2.5"	EMT	3	4/0	CU THWN	2	4/0	CU THWN	1	#4	CU THWN	225A
9	DP2	LP2k	1	2.5"	EMT	3	4/0	CU THWN	2	4/0	CU THWN	1	#4	CU THWN	225A
9	DP2	LP2l	1	2.5"	EMT	3	4/0	CU THWN	2	4/0	CU THWN	1	#4	CU THWN	225A
9	DP2	LP2m	1	2.5"	EMT	3	4/0	CU THWN	2	4/0	CU THWN	1	#4	CU THWN	225A
9	DP2	LP2n	1	2.5"	EMT	3	4/0	CU THWN	2	4/0	CU THWN	1	#4	CU THWN	225A
9	DP2	LP2o	1	2.5"	EMT	3	4/0	CU THWN	2	4/0	CU THWN	1	#4	CU THWN	225A
9	DP2	LP2p	1	2.5"	EMT	3	4/0	CU THWN	2	4/0	CU THWN	1	#4	CU THWN	225A
9	DP2	LP2q	1	2.5"	EMT	3	4/0	CU THWN	2	4/0	CU THWN	1	#4	CU THWN	225A
9	DP2	LP2r	1	2.5"	EMT	3	4/0	CU THWN	2	4/0	CU THWN	1	#4	CU THWN	225A
9	DP3	LP3a	1	2.5"	EMT	3	4/0	CU THWN	2	4/0	CU THWN	1	#4	CU THWN	225A
9	DP3	LP3b	1	2.5"	EMT	3	4/0	CU THWN	2	4/0	CU THWN	1	#4	CU THWN	225A
9	DP3	LP3c	1	2.5"	EMT	3	4/0	CU THWN	2	4/0	CU THWN	1	#4	CU THWN	225A
9	DP3	LP3d	1	2.5"	EMT	3	4/0	CU THWN	2	4/0	CU THWN	1	#4	CU THWN	225A
9	DP3	LP3e	1	2.5"	EMT	3	4/0	CU THWN	2	4/0	CU THWN	1	#4	CU THWN	225A
9	DP3	LP3f	1	2.5"	EMT	3	4/0	CU THWN	2	4/0	CU THWN	1	#4	CU THWN	225A
9	DP3	LP3g	1	2.5"	EMT	3	4/0	CU THWN	2	4/0	CU THWN	1	#4	CU THWN	225A
9	DP3	LP3h	1	2.5"	EMT	3	4/0	CU THWN	2	4/0	CU THWN	1	#4	CU THWN	225A
9	DP3	LP3i	1	2.5"	EMT	3	4/0	CU THWN	2	4/0	CU THWN	1	#4	CU THWN	225A
9	DP3	LP3j	1	2.5"	EMT	3	4/0	CU THWN	2	4/0	CU THWN	1	#4	CU THWN	225A
9	DP3	LP3k	1	2.5"	EMT	3	4/0	CU THWN	2	4/0	CU THWN	1	#4	CU THWN	225A
9	DP3	LP3l	1	2.5"	EMT	3	4/0	CU THWN	2	4/0	CU THWN	1	#4	CU THWN	225A
9	DP3	LP3o	1	2.5"	EMT	3	4/0	CU THWN	2	4/0	CU THWN	1	#4	CU THWN	225A
9	DP3	LP3p	1	2.5"	EMT	3	4/0	CU THWN	2	4/0	CU THWN	1	#4	CU THWN	225A
9	DP3	LP3q	1	2.5"	EMT	3	4/0	CU THWN	2	4/0	CU THWN	1	#4	CU THWN	225A
9	DP4	LP4a	1	2.5"	EMT	3	4/0	CU THWN	2	4/0	CU THWN	1	#4	CU THWN	225A
9	DP4	LP4b	1	2.5"	EMT	3	4/0	CU THWN	2	4/0	CU THWN	1	#4	CU THWN	225A
9	DP4	LP4c	1	2.5"	EMT	3	4/0	CU THWN	2	4/0	CU THWN	1	#4	CU THWN	225A
9	DP4	LP4d	1	2.5"	EMT	3	4/0	CU THWN	2	4/0	CU THWN	1	#4	CU THWN	225A
9	DP4	LP4e	1	2.5"	EMT	3	4/0	CU THWN	2	4/0	CU THWN	1	#4	CU THWN	225A
9	DP4	LP4f	1	2.5"	EMT	3	4/0	CU THWN	2	4/0	CU THWN	1	#4	CU THWN	225A
9	DP4	LP4g	1	2.5"	EMT	3	4/0	CU THWN	2	4/0	CU THWN	1	#4	CU THWN	225A
9	DP4	LP4h	1	2.5"	EMT	3	4/0	CU THWN	2	4/0	CU THWN	1	#4	CU THWN	225A
9	DP4	LP4i	1	2.5"	EMT	3	4/0	CU THWN	2	4/0	CU THWN	1	#4	CU THWN	225A
9	DP4	LP4j	1	2.5"	EMT	3	4/0	CU THWN	2	4/0	CU THWN	1	#4	CU THWN	225A
9	DP4	LP4k	1	2.5"	EMT	3	4/0	CU THWN	2	4/0	CU THWN	1	#4	CU THWN	225A
9	DP4	LP4l	1	2.5"	EMT	3	4/0	CU THWN	2	4/0	CU THWN	1	#4	CU THWN	225A
9	DP4	LP4m	1	2.5"	EMT	3	4/0	CU THWN	2	4/0	CU THWN	1	#4	CU THWN	225A
9	DP4	LP4n	1	2.5"	EMT	3	4/0	CU THWN	2	4/0	CU THWN	1	#4	CU THWN	225A
9	DP4	LP4p	1	2.5"	EMT	3	4/0	CU THWN	2	4/0	CU THWN	1	#4	CU THWN	225A
9	DP4	LP4q	1	2.5"	EMT	3	4/0	CU THWN	2	4/0	CU THWN	1	#4	CU THWN	225A
9	DP4	LP5a	1	2.5"	EMT	3	4/0	CU THWN	2	4/0	CU THWN	1	#4	CU THWN	225A
9	DP4	LP5b	1	2.5"	EMT	3	4/0	CU THWN	2	4/0	CU THWN	1	#4	CU THWN	225A
9	ELP1-C	ELP1a-C	1	2.5"	EMT	3	4/0	CU THWN	2	4/0	CU THWN	1	#4	CU THWN	225A
9	ELP1-C	ELP1b-C	1	2.5"	EMT	3	4/0	CU THWN	2	4/0	CU THWN	1	#4	CU THWN	225A
9	ELP2-C	ELP2a-C	1	2.5"	EMT	3	4/0	CU THWN	2	4/0	CU THWN	1	#4	CU THWN	225A
9	ELP2-C	ELP2b-C	1	2.5"	EMT	3	4/0	CU THWN	2	4/0	CU THWN	1	#4	CU THWN	225A
9	ELP2-C	ELP2c-C	1	2.5"	EMT	3	4/0	CU THWN	2	4/0	CU THWN	1	#4	CU THWN	225A

FEEDER SCHEDULE (CONTINUED)

Tag	From	To	No. of Sets	Conduit (Per Set)		Conductors (Per Set)									Size of Overcurrent Protection
						Phase Conductors			Neutral Conductors			Ground Conductors			
				Size	Type	No.	Size	Type	No.	Size	Type	No.	Size	Type	
9	ELP2-C	ELP2d-C	1	2.5"	EMT	3	4/0	CU THWN	2	4/0	CU THWN	1	#4	CU THWN	225A
9	ELP3-C	ELP3a-C	1	2.5"	EMT	3	4/0	CU THWN	2	4/0	CU THWN	1	#4	CU THWN	225A
9	ELP3-C	ELP3b-C	1	2.5"	EMT	3	4/0	CU THWN	2	4/0	CU THWN	1	#4	CU THWN	225A
9	ELP3-C	ELP3c-C	1	2.5"	EMT	3	4/0	CU THWN	2	4/0	CU THWN	1	#4	CU THWN	225A
9	ELP3-C	ELP3d-C	1	2.5"	EMT	3	4/0	CU THWN	2	4/0	CU THWN	1	#4	CU THWN	225A
9	ELP4-C	ELP4a-C	1	2.5"	EMT	3	4/0	CU THWN	2	4/0	CU THWN	1	#4	CU THWN	225A
9	ELP4-C	ELP4b-C	1	2.5"	EMT	3	4/0	CU THWN	2	4/0	CU THWN	1	#4	CU THWN	225A
9	ELP4-C	ELP4c-C	1	2.5"	EMT	3	4/0	CU THWN	2	4/0	CU THWN	1	#4	CU THWN	225A
9	ELP4-C	ELP4d-C	1	2.5"	EMT	3	4/0	CU THWN	2	4/0	CU THWN	1	#4	CU THWN	225A
9	THEL	LPHELa	1	2.5"	EMT	3	4/0	CU THWN	2	4/0	CU THWN	1	#4	CU THWN	225A
10	T2	DP2	4	3"	EMT	3	350KCMIL	CU THWN	2	350KCMIL	CU THWN	1	3/0	CU THWN	1200A
10	T3	DP3	4	3"	EMT	3	350KCMIL	CU THWN	2	350KCMIL	CU THWN	1	3/0	CU THWN	1200A
10	T4	DP4	4	3"	EMT	3	350KCMIL	CU THWN	2	350KCMIL	CU THWN	1	3/0	CU THWN	1200A
11	US1	T4	2	3.5"	EMT	3	500KCMIL	CU THWN	-	-	CU THWN	1	1/0	CU THWN	700A
12	US1	ELEV-1	1	2.5"	EMT	3	250KCMIL	CU THWN	-	-	CU THWN	1	#4	CU THWN	250A
13	HLPHELb	THEL	1	1.5"	EMT	3	#1	CU THWN	-	-	CU THWN	1	#6	CU THWN	125A
14	US1	HLP SITE	1	1.25"	EMT	3	#2	CU THWN	1	#2	CU THWN	1	#8	CU THWN	100A
15	US1	ATS #2	2	3"	EMT	3	#2	CU THWN	1	#2	CU THWN	1	#8	CU THWN	600A
15	EDB NS2	ATS #2	2	3"	EMT	3	#2	CU THWN	1	#2	CU THWN	1	#8	CU THWN	600A
15	ATS #2	EHDP1-C	2	3"	EMT	3	#2	CU THWN	1	#2	CU THWN	1	#8	CU THWN	600A
16	US1	ATS #1	2	4"	EMT	3	500KCMIL	CU THWN	1	500KCMIL	CU THWN	1	1/0	CU THWN	800A
16	EDB NS2	ATS #1	2	4"	EMT	3	500KCMIL	CU THWN	1	500KCMIL	CU THWN	1	1/0	CU THWN	800A
16	ATS #1	EHDP1-S	2	4"	EMT	3	500KCMIL	CU THWN	1	500KCMIL	CU THWN	1	1/0	CU THWN	800A
17	GENERATOR	EDB NS2	6	4"	EMT	3	500KCMIL	CU THWN	1	500KCMIL	CU THWN	1	250KCMIL	CU THWN	2000A
18	EHDP1-S	AH-1	1	3"	EMT	3	500KCMIL	CU THWN	-	-	CU THWN	1	#3	CU THWN	350A
18	EHDP1-S	AH-2	1	3"	EMT	3	500KCMIL	CU THWN	-	-	CU THWN	1	#3	CU THWN	350A
19	EHDP1-S	EMCCR-S	2	3"	EMT	3	500KCMIL	CU THWN	-	-	CU THWN	1	1/0	CU THWN	800A
20	EHDP1-S	ELEV-2	1	1.5"	EMT	3	2/0	CU THWN	-	-	CU THWN	1	#6	CU THWN	175A
20	EMCCR-S	EF-1	1	1.5"	EMT	3	2/0	CU THWN	-	-	CU THWN	1	#6	CU THWN	175A
20	EMCCR-S	EF-2	1	1.5"	EMT	3	2/0	CU THWN	-	-	CU THWN	1	#6	CU THWN	175A
20	EMCCR-S	EF-3	1	1.5"	EMT	3	2/0	CU THWN	-	-	CU THWN	1	#6	CU THWN	175A
21	EHLPHEL-S	ETHEL-S	1	3/4"	EMT	3	#10	CU THWN	-	-	CU THWN	1	#10	CU THWN	25A
22	ETHEL-S	ELP-g	1	1"	EMT	3	#4	CU THWN	1	#4	CU THWN	1	#10	CU THWN	60A
23	EHLPHEL-C	ETHEL-C	1	1"	EMT	3	#4	CU THWN	-	-	CU THWN	1	#8	CU THWN	70A
23	EHLP1-S	ET1-S	1	1"	EMT	3	#4	CU THWN	-	-	CU THWN	1	#8	CU THWN	70A
23	EHLP2-S	ET2-S	1	1"	EMT	3	#4	CU THWN	-	-	CU THWN	1	#8	CU THWN	70A
23	EHLP3-S	ET3-S	1	1"	EMT	3	#4	CU THWN	-	-	CU THWN	1	#8	CU THWN	70A
23	EHLP4-S	ET4-S	1	1"	EMT	3	#4	CU THWN	-	-	CU THWN	1	#8	CU THWN	70A
24	ETHEL-C	ELPHEL-C	1	2"	EMT	3	1/0	CU THWN	1	1/0	CU THWN	1	#6	CU THWN	150A
24	ET1-S	ELP1-S	1	2"	EMT	3	1/0	CU THWN	1	1/0	CU THWN	1	#6	CU THWN	150A
24	ET2-S	ELP2-S	1	2"	EMT	3	1/0	CU THWN	1	1/0	CU THWN	1	#6	CU THWN	150A
24	ET3-S	ELP3-S	1	2"	EMT	3	1/0	CU THWN	1	1/0	CU THWN	1	#6	CU THWN	150A
24	ET4-S	ELP4-S	1	2"	EMT	3	1/0	CU THWN	1	1/0	CU THWN	1	#6	CU THWN	150A
25	EHLP4-C	EHDPR-C	1	1"	EMT	3	#6	CU THWN	1	#6	CU THWN	1	#10	CU THWN	50A
26	EHLP2-C	ET2-C	1	1.5"	EMT	3	1/0	CU THWN	-	-	CU THWN	1	#6	CU THWN	150A
26	EHLP3-C	ET3-C	1	1.5"	EMT	3	1/0	CU THWN	-	-	CU THWN	1	#6	CU THWN	150A
26	EHLP4-C	ET4-C	1	1.5"	EMT	3	1/0	CU THWN	-	-	CU THWN	1	#6	CU THWN	150A
26	EHLP1-C	ET1-C	1	1.5"	EMT	3	1/0	CU THWN	-	-	CU THWN	1	#6	CU THWN	150A
27	ET1-C	ELP1-C	1	4"	EMT	3	500KCMIL	CU THWN	2	500KCMIL	CU THWN	1	#3	CU THWN	400A

FEEDER SCHEDULE (CONTINUED)															
Tag	From	To	No. of Sets	Conduit (Per Set)		Conductors (Per Set)									Size of Overcurrent Protection
						Phase Conductors			Neutral Conductors			Ground Conductors			
				Size	Type	No.	Size	Type	No.	Size	Type	No.	Size	Type	
27	ET2-C	ELP2-C	1	4"	EMT	3	500KCMIL	CU THWN	2	500KCMIL	CU THWN	1	#3	CU THWN	400A
27	ET3-C	ELP3-C	1	4"	EMT	3	500KCMIL	CU THWN	2	500KCMIL	CU THWN	1	#3	CU THWN	400A
27	ET4-C	ELP4-C	1	4"	EMT	3	500KCMIL	CU THWN	2	500KCMIL	CU THWN	1	#3	CU THWN	400A
28	EHDP1-C	PCWP 1	1	1"	EMT	3	#6	CU THWN	-	-	CU THWN	1	#10	CU THWN	50A
28	EHDP1-C	PCWP 2	1	1"	EMT	3	#6	CU THWN	-	-	CU THWN	1	#10	CU THWN	50A

NOTES:

1. REFER TO SINGLE-LINE DIAGRAM FOR FEEDER TAGS
CU = COPPER