

## IX. APPENDIX

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LUMINAIRE & BREAKER SPECIFICATION SHEETS IN THIS SECTION

# ML™

Includes SYNTO optics



## Fluorescent One or Two Lamp 28W T5 One or Two Lamp 54W T5 HO

**Applications:** An innovative lighting chamber concept with **five center diffuser options** including **SYNTO optics** shielding the lamp(s) from view, while directing light where needed in a glare-free and efficient way. Ideal for offices, retail, health care and educational facilities. Fixtures with optional blue, green and yellow acrylic color inserts give the diffusers a uniform, softly tinted glow.

# Recessed 1' x 4'

online  
Find it Fast

# 313

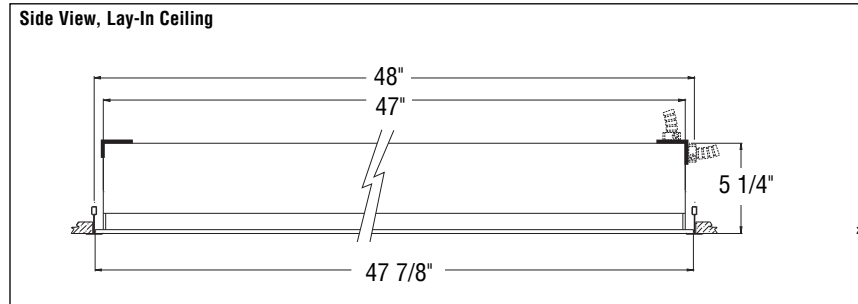
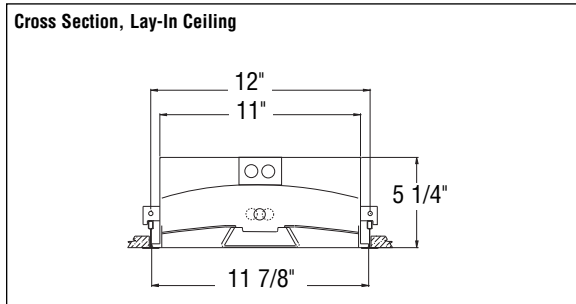
**ZOOM!** 2-week delivery on items shown in gray

Meets RP-1-04 guidelines for intensive (1285 C/W) and normal (1545 MP/C/W, 2285 C/W) VDT-use environments.

Type: \_\_\_\_\_ Quantity: \_\_\_\_\_ Project: \_\_\_\_\_

ML4	14				
FIXTURE/CEILING TYPE	LENGTH	LAMPING	OPTIC	BALLAST/VOLTAGE	OPTIONS
ML4U ML Recessed 15/16" Lay-In, Flush 9/16" Slot-Grid, Flush 9/16" Lay-In, Tegular	14 1' x 4'	1285 (1) 28W T5	MP Micro-Pyramidal Optic	U Universal 120/277V	WF Whip Flex 3/8" X 6' 14 AWG
		1545 (1) 54W T5 HO	OL Opal Acrylic Lens	347 347V	WN_* Whip Flex 3/8" X 6' 14 AWG (NYC)
ML4F ML Recessed 9/16" Lay-In, Flush		2285 (2) 28W T5	MD MicroGrid Diffuser, Titan	DA_* Dimming, Analog (0-10V)	EM1_* Standby Battery Pack/1 lamp
		2545 (2) 54W T5 HO	C Matte SYNTO Louver	DD_* Dimming, DALI	SS Separate Switching
ML4E ML Recessed Concealed			W White SYNTO Louver	DE_* Dimming, Lutron ECO-10™	AR Air Return
			CO Matte SYNTO Louver with Frosted Inlay	DH_* Dimming, Lutron HiLume®	CP Chicago Plenum
For flange details, see next page			WO White SYNTO Louver with Frosted Inlay	DSC_* Dimming, Lutron EcoSystem™, Control Fixture	F Fusing
				DSN_* Dimming, Lutron EcoSystem™, Non-control Fixture	CB2** Color inlay, blue
				STDM_* Dimming, Step	CG2** Color inlay, green
					CY2** Color inlay, yellow

\* Specify "1" for 120V or "2" for 277V. Some lamp types may not be available.  
\*\* Can be ordered with complete fixtures only. To order separately consult factory.  
Lutron HiLume dimming ballast only available with 54W T5 HO lamps.  
STDM only available with 28W T5 lamps. STDM not available for 347V.



IBEW Union Made  
US patent pending PCT/EP01/01269  
US patent pending PCT/EP01/01270  
US Patent D 477,891

Lead Time? Double-click on  
<http://www.zumtobel.us/PDB?lang=EN&id=11080&iso2=US>  
A = ZOOM! Quick Ship - ships in 2 weeks  
B = ships in 4 weeks C = ships in 8 weeks

- Housing** - 20 gauge cold-rolled steel. Finish is powder-coated white. Post painted. Right-angle access plate (two per fixture) allows feed from top or side of unit.
- Light Chamber** - Powder-coated high-reflectance white interior reflector and shaped extruded acrylic diffusers. Fixtures available with optional color inlays in blue, green, or yellow.
- Optics** - **MP:** Clear, extruded micro-pyramidal optic diffuser and clear acrylic lining. **OL:** Extruded, opal acrylic lens. **MD:** Metal grid in Titan finish, backed with a translucent opal acrylic extruded lens.

- C/W:** Matte or white finish 16-cell SYNTO louver has blades 7/8" high by 17/16" o.c. Optional opal inlay is white acrylic. Optic assembly pulls down for lamp access.
- Lamps/sockets** - One or two 28W T5 or 54W T5 HO fluorescent lamps with miniature bi-pin sockets. Lamps supplied by others.
- Ballast** - Universal voltage electronic 120/277V ballast. Consult factory for 347V. Ballasts are mounted in luminaire. Accessible from below.
- Dimming** - In control fixtures with Lutron EcoSystem dimming, control wires

- are brought to an interface. Consult factory for location of control wire feed. Consult factory for specific dimming requirements other than those listed above.
- Mounting** - Integral bend out tabs are provided in the universal (ML4U and ML4F) ceiling fixture types. Adjustable mounting brackets provided for selected concealed T-bar or gypsum board (ML4E) ceiling installations.
- Standby Battery Pack** - Integral standby battery pack with integral test switch.
- Weight** - 22.0 lbs.

OTHER ML4 FAMILY LUMINAIRES	FIF #
ML4 1X2 T5 / T5 HO / T5TT LAMPING	311
ML4 2X2 T5 / T5 HO / T5TT LAMPING	312
ML4 2X4 T5 / T5 HO LAMPING	314
ML4A SURFACE MOUNT	315

OTHER ML4 FAMILY LUMINAIRES	FIF #
ML4 1X2 T8 LAMPING	608
ML4 2X2 T8 LAMPING	609
ML4 1X4 T8 LAMPING	610
ML4 2X4 T8 LAMPING	611

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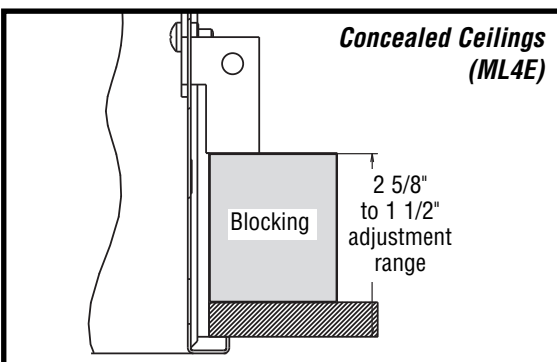
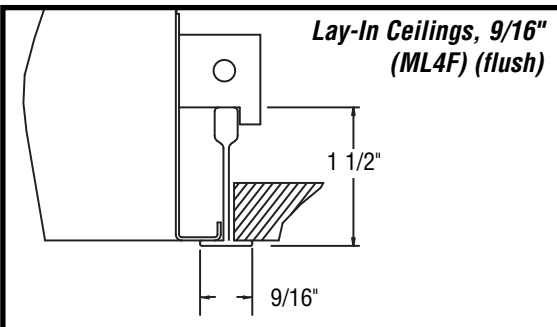
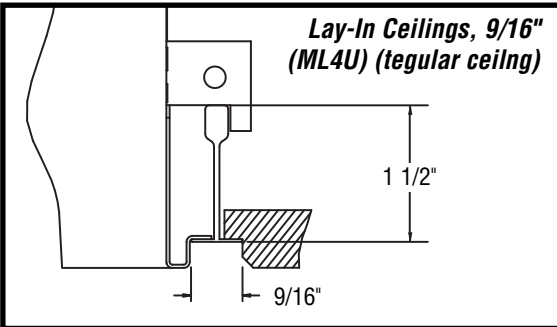
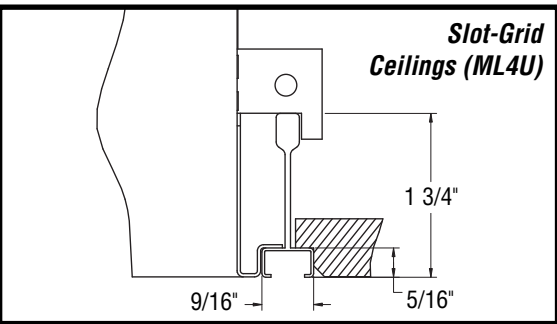
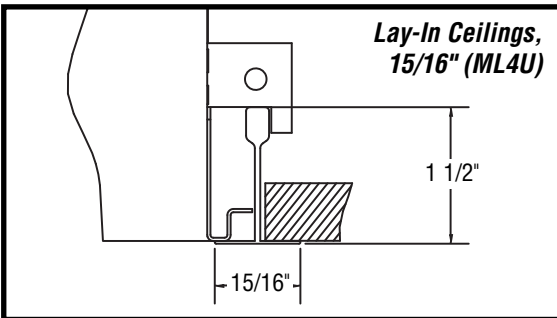
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## ML4-10

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## Mounting with common ceiling types



## ML4 14 1545 MP (1) 54W T5HO

1x4 RECESSED, MICRO-PYRAMIDAL OPTIC DIFFUSER

LTL 11850

Total Luminaire Efficiency 67%

0% Uplight 100% Downlight

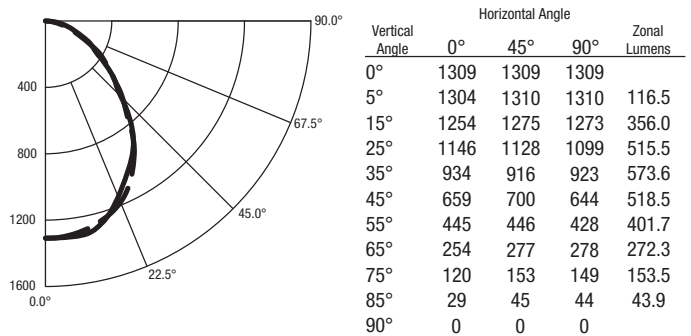
Spacing Criteria

Lateral Plane 0° 90°  
1.2 1.2

TOTAL LAMP LUMENS = 4400

INPUT WATTS = 60

## Candela Distribution



## Luminance Data in Candela / Sq. Meter

Angle in Vertical°	Average 0°	Average 45°	Average 90°
45°	3091	3283	3021
55°	2573	2579	2475
65°	1993	2174	2182
75°	1538	1961	1909
85°	1104	1713	1674

## Coefficients of Utilization

Effective Floor Cavity Reflectance = 20%

pcc	0.8				0.7				0.5			0.3		
	0.7	0.5	0.3	0.1	0.7	0.5	0.3	0.1	0.5	0.3	0.1	0.5	0.3	0.1
0	81	81	81	81	79	79	79	79	75	75	75	72	72	72
1	74	71	69	66	72	70	67	65	67	65	63	64	63	61
2	68	63	59	55	66	62	58	54	59	56	53	57	54	52
3	63	56	51	47	61	55	50	46	53	49	45	51	48	45
4	58	50	45	40	56	49	44	40	48	43	39	46	42	39
5	53	45	39	35	52	44	39	35	43	38	35	42	38	34
6	49	41	35	31	48	40	35	31	39	34	31	38	34	30
7	46	37	32	28	45	37	31	28	36	31	27	35	31	27
8	43	34	29	25	42	34	29	25	33	28	25	32	28	25
9	40	32	26	23	39	31	26	23	30	26	23	30	25	22

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11/6/08

ML4-10A

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**ZUMTOBEL**

## 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.

### 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



### 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)

<b>Job Name:</b> <input style="width: 90%; height: 20px;" type="text"/>	<b>Model Numbers:</b> <input style="width: 95%; height: 20px;" type="text"/>
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## Specifications

### Performance



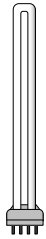
- Dimming Range: 100% to 10% measured relative light output
- Lamp Starting: programmed rapid start
- Minimum Lamp Starting Temperature: 10 °C (50 °F)
- Ambient Temperature Operating Range: 10 °C (50 °F) to 60 °C (140 °F)
- Relative Humidity: maximum 90% non-condensing
- Operating Voltage: 120 V or 277 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

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<b>Job Number:</b> <input style="width: 90%;" type="text"/>	<input style="width: 95%;" type="text"/>	<input style="width: 95%;" type="text"/>

### Eco-10 Ballast Models

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
<b>T5 linear</b>   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
<b>T5-HO linear high output</b>   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
<b>T5 Twin-Tube</b>   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



<b>Job Name:</b> <input type="text"/>	<b>Model Numbers:</b> <input type="text"/>	
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**46704 – F28W/T5/830/ECO**

GE Ecolux® Starcoat® T5



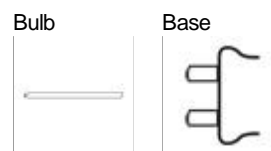
- Passes TCLP, which can lower disposal costs.

 a product of  
**ecomagination**

High Color Rendering

**GENERAL CHARACTERISTICS**

Lamp type	Linear Fluorescent - Straight Linear
Bulb	T5
Base	Miniature Bi-Pin (G5)
Wattage	28
Voltage	167
Rated Life	30000 hrs
Rated Life (rapid start) @ Time	30000 h @ 3 h 36000 h @ 12 h
Bulb Material	Soda lime
Starting Temperature (MIN)	-20 °C (-4 °F)
LEED-EB MR Credit	56 picograms Hg per mean lumen hour
Additional Info	TCLP compliant

[View Larger](#)**PHOTOMETRIC CHARACTERISTICS**

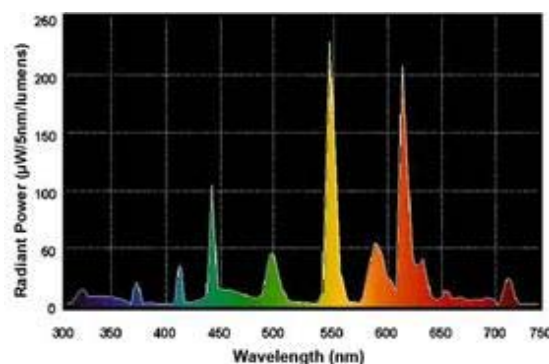
Initial Lumens	2900
Mean Lumens	2660
Nominal Initial Lumens per Watt	103
Color Temperature	3000 K
Color Rendering Index (CRI)	85
S/P Ratio (Scotopic/Photopic Ratio)	1.3

**ELECTRICAL CHARACTERISTICS**

Open Circuit Voltage (rapid start) Min @ Temperature	425 V @ 10 °C
Cathode Resistance Ratio - Rh/Rc (MIN)	4.25
Cathode Resistance Ratio - Rh/Rc (MAX)	6.5
Current Crest Factor (MAX)	1.7

**DIMENSIONS**

Maximum Overall Length (MOL)	45.8000 in (1163.3 mm)
Nominal Length	45.200 in (1148.0 mm)
Bulb Diameter (DIA)	0.625 in (15.8 mm)
Bulb Diameter (DIA) (MAX)	0.670 in (17.0 mm)

**ADDITIONAL RESOURCES**[Catalogs](#)[Testimonials](#)[Disposal Policies & Recycling Information](#)**GRAPHS & CHARTS****Spectral Power Distribution****Lamp Mortality**

Max Base Face to Base Face (A)	45.240 in (1149.0 mm)
Face to End of Opposing Pin (B) (MIN)	45.420 in (1153.6 mm)
Face to End of Opposing Pin (B) (MAX)	45.520 in (1156.2 mm)

**PRODUCT INFORMATION**

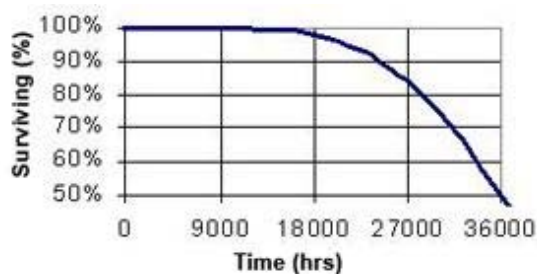
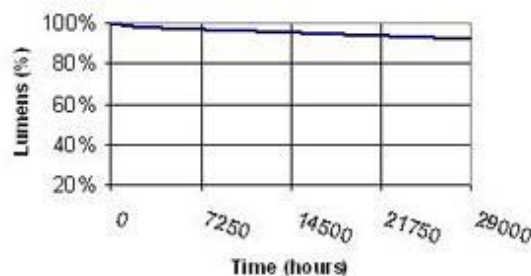
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Description	F28W/T5/830/ECO
Standard Package	Case
Standard Package GTIN	10043168467046
Standard Package Quantity	40
Sales Unit	Unit
No Of Items Per Sales Unit	1
No Of Items Per Standard Package	40
UPC	043168467049

**COMPATIBLE GE BALLASTS**

Product Code	Description	# of Bulbs	Power Factor	Ballast Factor
<a href="#">99655</a>	GE228MVPS-A	1	99.0	1.09
<a href="#">99653</a>	GE228MVPSH-A	1	99.0	1.21

**⚠ CAUTIONS & WARNINGS**

[See list of cautions & warnings.](#)

**Lumen Maintenance****YOU MIGHT ALSO BE INTERESTED IN...****For Energy**

[GE Ecolux® Starcoat® T5](#)

Product code: 71652

- Passes TCLP, which can lower disposal costs.

[COMPARE](#)

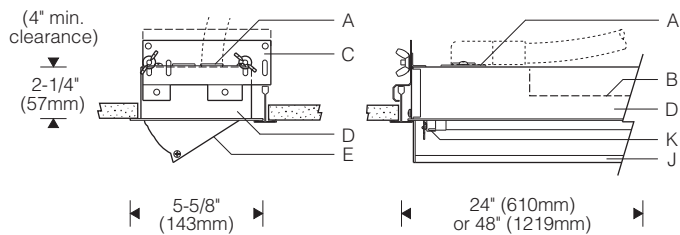
\*Click on product for more specification details

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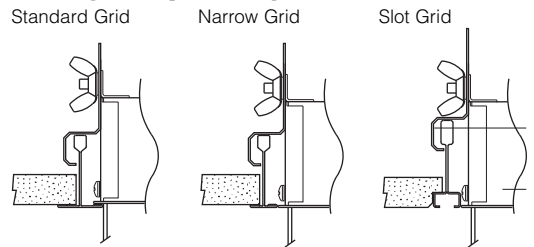
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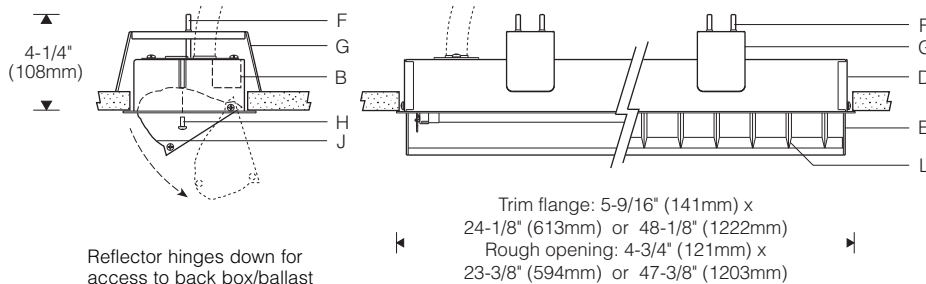
**L Mount: Accessible Grid Ceiling** 1:8 Scale



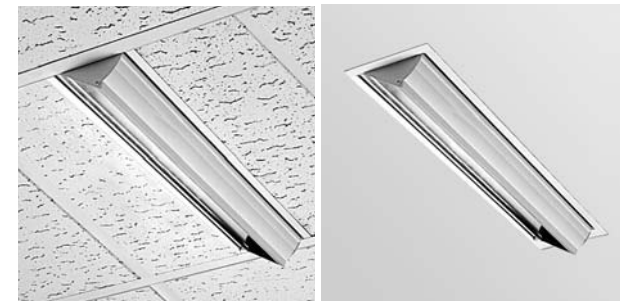
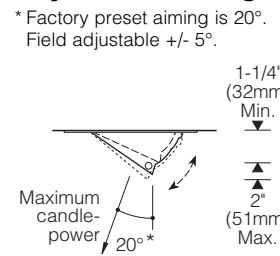
**Ceiling Compatibility**



**T Mount: Non-Accessible Ceiling**



**Adjustable Aiming**



**Specifications**

- A** Splice access plate with (2) KO's (connector and conduit by others)
- B** Integral electronic ballast
- C** Adjustable hanger clamps (grid ceiling)
- D** Formed aluminum back box with 1/2" flange trim
- E** Contoured aluminum end plates
- F** Wing cinching screws
- G** Wing mounting bracket (non-accessible ceiling)
- H** Reflector aiming screws
- J** Specular extruded aluminum reflector
- K** Miniature bi-pin lampholders
- L** Accessory snap-in specular parabolic cross baffle, 35° lengthwise shielding

**Finish:**

Semi-gloss white exterior and trim or bright clear anodized aluminum housing with semi-gloss black end plates and trim. Painted surfaces - 6 stage pretreatment and electrostatically applied thermoset polyester powder coating for stable, long lasting and corrosion resistant finish.

Reflector - extruded high purity aluminum with clear anodized specular finish. All hardware - stainless steel. Mounting brackets - cold rolled steel with corrosion resistance finish.

**Electrical:**

Use 90°C wire for supply connections. Splice access plate on top of back box includes two 7/8" diameter conduit entries. Integral electronic HPF thermally protected class P ballast with end-of-life protection. Optional master/satellite. Master supplied with 2-lamp ballast. Satellite supplied with 10' (3m) leads (conduit by others).

Optional electronic dimming ballast; compatible dimmer switch required (by others). Consult sales representative for compatibility and specifications.

Optional emergency battery - unswitched supply is required.

**Mounting:**

**L** mount - compatible with most lay-in grid ceilings with T-bar supports 24" (610mm) or 48" (1219mm) on center. Finished trim on long sides supports cut ceiling tile or can rest atop or abut grid.

End hanger clamps with wing nuts for vertical adjustment. Supplemental wire or chain supports (by others) may be required by local codes (weight approx. 10 lb/4.5 kg). Units can be mounted end-to-end in adjacent tiles.

**T** mount - installs from below non-accessible ceiling. Bracket wings spring outward in plenum and cinch down to ceiling with screws accessible from below. Suitable for ceilings up to 1-1/2" (38mm) thick.

**Standard:**

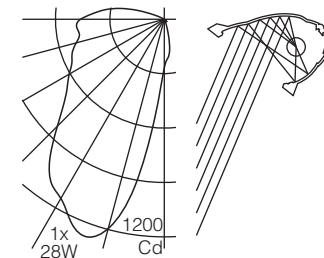
UL listed or CSA certified.

**Features**

- Unequaled low energy wall lighting from 2' or 4' T5 lamp
- Low profile semi-recessed design - evenly lights entire wall; conceals reflector aperture from normal view
- Adjustable - tailor performance to wall height and setback
- Compact - ceiling opening less than 6" wide
- Available for lay-in grid or non-accessible ceilings

**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](http://www.elliptipar.com).



To form a Catalog Number

F | 2 | 1 | 0 | - | T | | | | - | | | - | | | - | | | |  
 1 2 3 4 5 6 7 8

1 Source

F = Linear fluorescent

2 Style

210 = Small semi-recessed, adjustable, integral ballast

3 Lamp

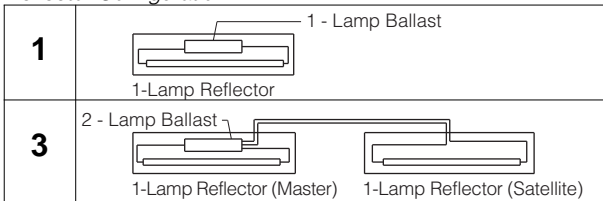
T | | | = Lamp Code

Lamp Wattage (see chart below)

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

Example: **T328** = two nominal 4' reflectors, each for use with one 28W T5 lamp; master/satellite ballast combination

Reflector Configuration



Lamp Wattage	Lamp Length	Lamp Number
T5 Fluorescent		
14	2'	F14T5
28	4'	F28T5
T5 HO Fluorescent		
24	2'	F24T5/HO
55	4'	F54T5/HO

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

Project: \_\_\_\_\_

4 Mounting

- L = Lay-in grid ceiling (for T-bars 24" or 48" on center)
- T = Overlapping trim for non-accessible ceilings

5 Finish

- 02 = Semi-gloss white
- 81 = Bright clear anodized reflector with semi-gloss black end plates and trim

6 Voltage/Ballast

- |                   |                 |
|-------------------|-----------------|
| <i>Electronic</i> | <i>Dimming*</i> |
| 1 = 120V          | T = 120V        |
| 2 = 277V          | V = 277V        |
| 3 = 347V (Canada) |                 |

\* Consult factory for dimming for Reflector Configuration 3. Dimming availability for wattages and voltages varies with ballast manufacturer and control type - see [www.elliptipar.com](http://www.elliptipar.com) for dimming specifications and limitations

7 Option (See Accessories Section for specifications)

- 00 = No options
- 0C = Modified to comply with Chicago plenum code.
- 0B = Snap-in parabolic cross baffle, specular finish, provides 35° lengthwise shielding
- 0E = Emergency battery pack with indicator lamp and test button. Integral for 48" units (lamp codes **T128**, **T328**, **T155** and **T355**). Remote for 24" units (lamp codes **T114**, **T314**, **T124** and **T324**). Operates one lamp only for master/satellite Configuration 3. **Note:** Requires unswitched feed to battery (by others).
- BE = Combination of parabolic cross baffle and emergency battery pack
- 0Y = Modified to comply with New York City code
- 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

**F210 - T128 - L - 02 - 1 - 000**

Small semi-recessed model for use with 28W T5 lamp in 4' reflector. For use in lay-in grid ceilings with T-bars spaced at 48" on center. Semi-gloss white. Integral 120V electronic ballast. UL.

Type: \_\_\_\_\_

Accessories

Order separately. See Accessories Section for specifications.

AFK000X | = Ballast fuse kit

- 0 = UL
- J = CSA





## 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.

### 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



### 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)

Job Name:

Model Numbers:

Job Number:



## Specifications

### Performance



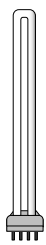
- Dimming Range: 100% to 10% measured relative light output
- Lamp Starting: programmed rapid start
- Minimum Lamp Starting Temperature: 10 °C (50 °F)
- Ambient Temperature Operating Range: 10 °C (50 °F) to 60 °C (140 °F)
- Relative Humidity: maximum 90% non-condensing
- Operating Voltage: 120 V or 277 V at 60Hz
- Lamp Current Crest Factor: less than 1.7
- Lamp Flicker: none visible
- Light Output Variation: constant  $\pm 2\%$  light output for line voltage variations of  $\pm 10\%$
- 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

<b>Job Name:</b>	<b>Model Numbers:</b>
<b>Job Number:</b>	

### Eco-10 Ballast Models


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
<b>T5 linear</b>   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
<b>T5-HO linear high output</b>   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
<b>T5 Twin-Tube</b>   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



<b>Job Name:</b>	<b>Model Numbers:</b>
<b>Job Number:</b>	

Eco-10 Ballast Models continued ...

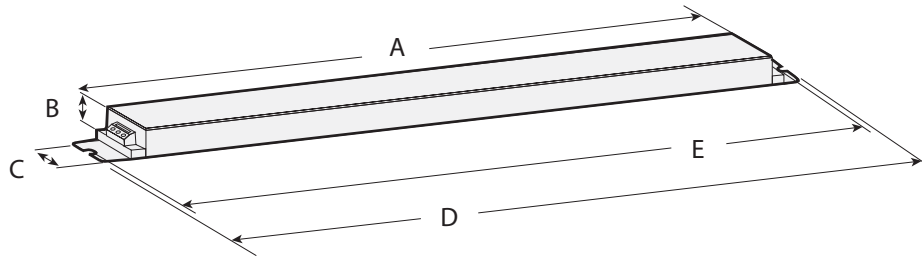
Lamp Type				120 VOLTS		277 VOLTS	
	Lamp Watts (length)	Lamps per ballast	Case Type	Ballast Current (amps)	Eco-10 Model Number	Ballast Current (amps)	Eco-10 Model Number
<b>T8 linear and U-bent</b>  1 in. diameter	17 W (24 in.)	1	F	.19	ECO-T817-120-1	.08	ECO-T817-277-1
		2	F	.31	ECO-T817-120-2	.15	ECO-T817-277-2
		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		



<b>Job Name:</b>	<b>Model Numbers:</b>
<b>Job Number:</b>	

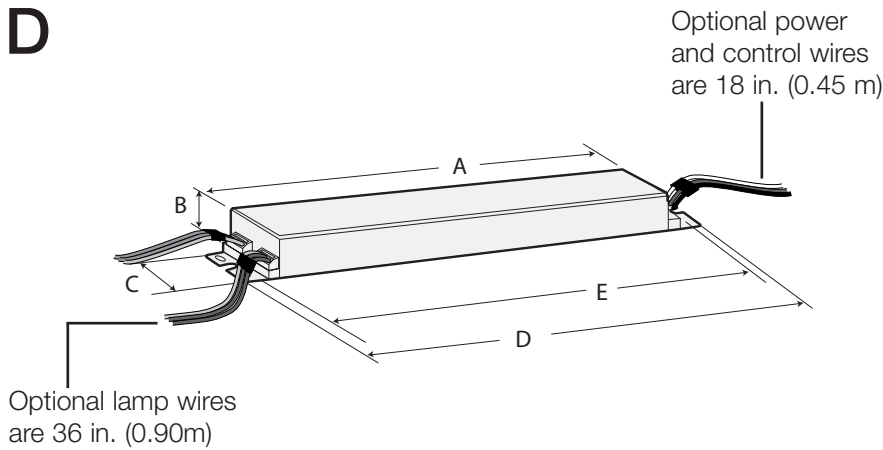
Eco-10 Case Dimensions

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)

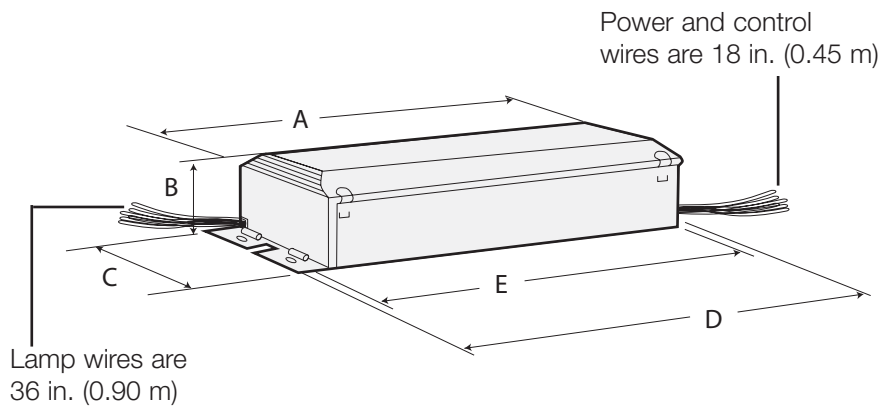
D



- 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



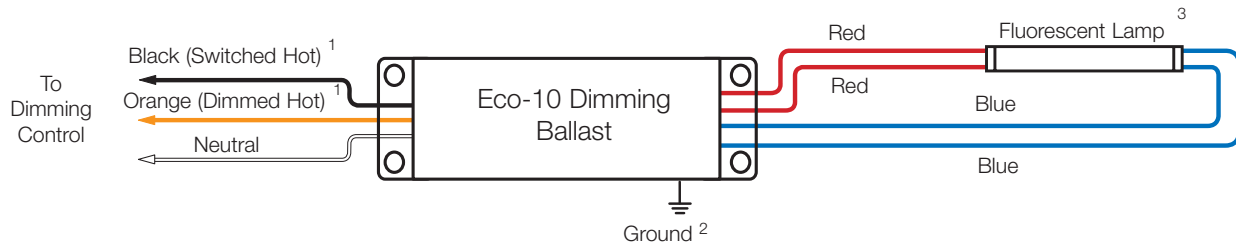
- A 8.30 in. (211 mm)
- B 1.50 in. (38 mm)
- C 2.38 in. (60 mm)
- D 9.50 in. (241 mm)
- E 8.91 in. (226 mm)  
(slot mounting centers)

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

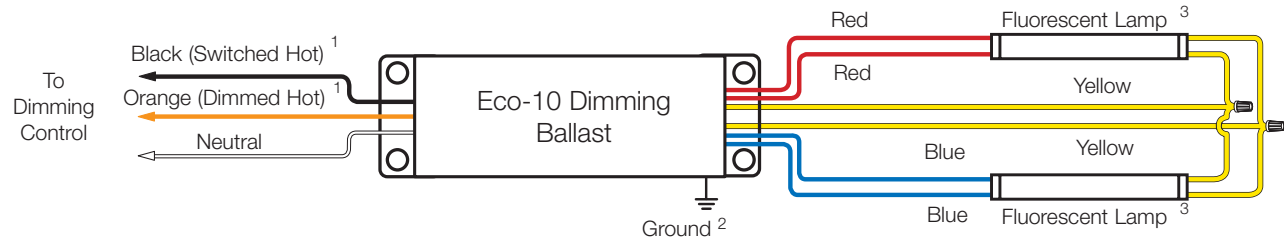
<b>Job Name:</b>	<b>Model Numbers:</b>
<b>Job Number:</b>	

## Eco-10 Wiring Diagrams

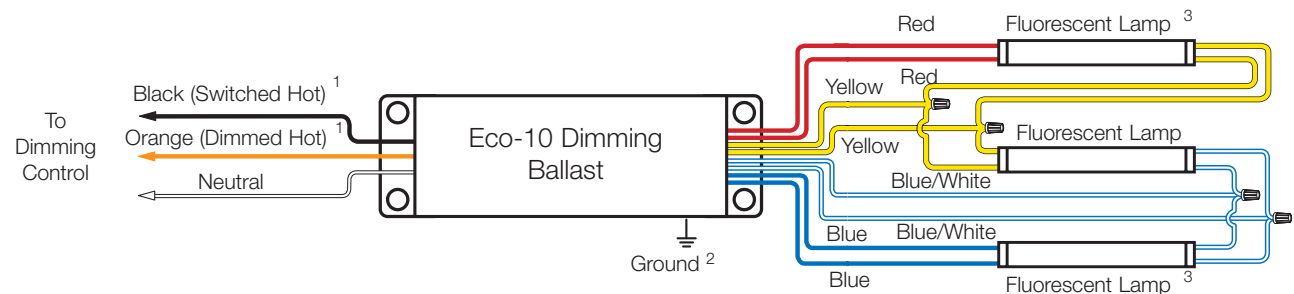
### One T5 or T8 lamp



### Two T5 or T8 lamps



### Three T8 lamps



<sup>1</sup> 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.

<sup>2</sup> Ballast and lighting fixture must be effectively grounded.

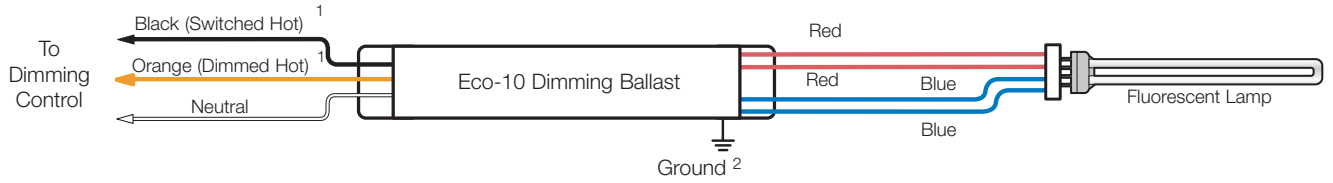
<sup>3</sup> Includes 31 W T8 U-bent lamps

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

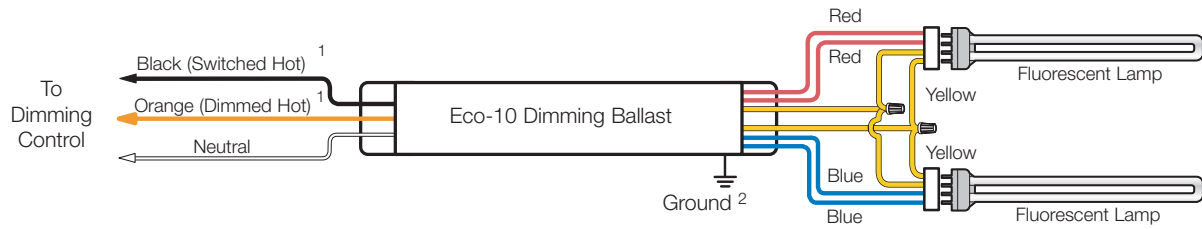
<p><b>Job Name:</b></p>	<p><b>Model Numbers:</b></p>
<p><b>Job Number:</b></p>	

## Eco-10 Wiring Diagrams continued

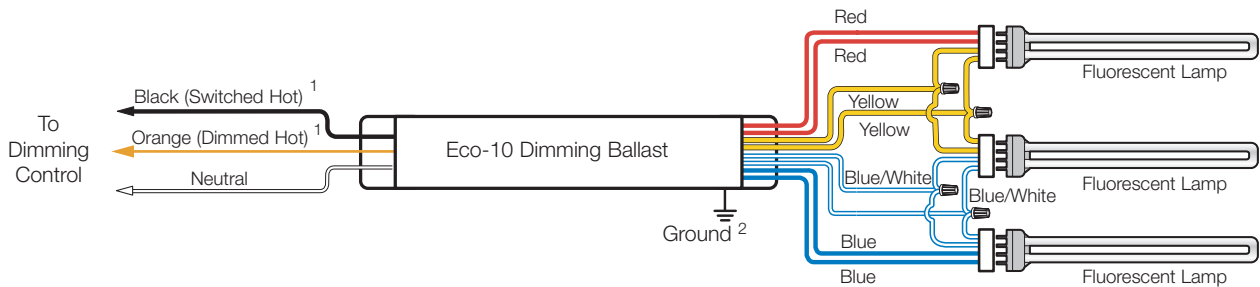
### One T5 twin-tube lamp



### Two T5 twin-tube lamps



### Three T5 twin-tube lamps



<sup>1</sup> 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.

<sup>2</sup> 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).

Job Name:	Model Numbers:
Job Number:	



**ATTENTION ELECTRICIANS AND CONTRACTORS**

**Ballast/Socket Leads**

Lead lengths from ballast to socket must not exceed 7 ft. (2 m) for T5 and T8 lamps, and 3 ft. (1 m) for T5 twin-tube lamps.

**Lamp Sockets**

Quality lamp sockets are required to ensure positive lamp-pin to socket contact. T5 linear lamps require rotary locking sockets. T8 lamps require knife-edge sockets. U-bent lamps require locking sockets and proper lamp support to hold lamp pins in full contact with the socket. T5 twin-tube lamps require sockets that lock into the lamp base and provide proper lamp support to hold lamp pins in full contact with socket.

**Lamp Mounting for T5 Twin-Tube and T8**

Many fluorescent lamp sockets are available with mounting slots to vary the height of the lamp away from the grounded metal surface. Use these slots to get the outside edge of the lamp to be 1/2 in. ± 1/4 in. away from the grounded metal surface.

Having a fluorescent lamp too close to the grounded metal will make the minimum intensity too low and will reduce lamp life. Having a fluorescent lamp too far away from the grounded metal will make the lamp flicker or not turn on at all.

**Lamp Mounting for T5**

Keep lamp at least 3/8 in. ± 1/8 in. away from the grounded metal surface. Having a lamp too close to grounded metal may cause a visible difference in brightness along the length of the lamp.

**Wiring and Grounding**

All wiring from the dimming control to the Eco-10 ballasts is line voltage wiring and may be run together in the same conduit.

Ballast and lighting fixture must be effectively grounded. Ballasts must be installed per national and local electrical codes.

**Ballast Operating Temperature**

Ballast case temperature must not exceed 75 °C at any point on ballast.

**Number of Ballasts Per Control**

To calculate the maximum number of ballasts allowed per control, divide control's current capacity by individual ballast current. Certain controls allow a specific maximum number of ballasts.



**ATTENTION FACILITIES MANAGERS**

**PERFORMANCE**

**Lamps Seasoning**

Consult lamp manufacturer's recommendation on lamp seasoning prior to dimming.

**SERVICE**

**Replacement Parts**

Use replacement parts with exact Lutron model numbers. Consult Lutron if there are questions.

**Further Information**

For further information, please visit <http://www.lutron.com/ballasts> or contact our 24-hour Technical Support Center at 1-800-523-9466.

<p><b>Job Name:</b></p>	<p><b>Model Numbers:</b></p>
<p><b>Job Number:</b></p>	





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**46704 – F28W/T5/830/ECO**

GE Ecolux® Starcoat® T5



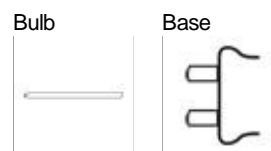
- Passes TCLP, which can lower disposal costs.

 a product of  
**ecomagination**

High Color Rendering

**GENERAL CHARACTERISTICS**

Lamp type	Linear Fluorescent - Straight Linear
Bulb	T5
Base	Miniature Bi-Pin (G5)
Wattage	28
Voltage	167
Rated Life	30000 hrs
Rated Life (rapid start) @ Time	30000 h @ 3 h 36000 h @ 12 h
Bulb Material	Soda lime
Starting Temperature (MIN)	-20 °C (-4 °F)
LEED-EB MR Credit	56 picograms Hg per mean lumen hour
Additional Info	TCLP compliant

[View Larger](#)**PHOTOMETRIC CHARACTERISTICS**

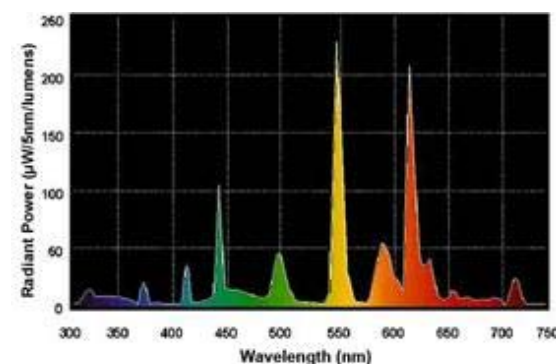
Initial Lumens	2900
Mean Lumens	2660
Nominal Initial Lumens per Watt	103
Color Temperature	3000 K
Color Rendering Index (CRI)	85
S/P Ratio (Scotopic/Photopic Ratio)	1.3

**ELECTRICAL CHARACTERISTICS**

Open Circuit Voltage (rapid start) Min @ Temperature	425 V @ 10 °C
Cathode Resistance Ratio - Rh/Rc (MIN)	4.25
Cathode Resistance Ratio - Rh/Rc (MAX)	6.5
Current Crest Factor (MAX)	1.7

**DIMENSIONS**

Maximum Overall Length (MOL)	45.8000 in (1163.3 mm)
Nominal Length	45.200 in (1148.0 mm)
Bulb Diameter (DIA)	0.625 in (15.8 mm)
Bulb Diameter (DIA) (MAX)	0.670 in (17.0 mm)

**ADDITIONAL RESOURCES**[Catalogs](#)[Testimonials](#)[Disposal Policies & Recycling Information](#)**GRAPHS & CHARTS****Spectral Power Distribution****Lamp Mortality**

Max Base Face to Base Face (A)	45.240 in (1149.0 mm)
Face to End of Opposing Pin (B) (MIN)	45.420 in (1153.6 mm)
Face to End of Opposing Pin (B) (MAX)	45.520 in (1156.2 mm)

**PRODUCT INFORMATION**

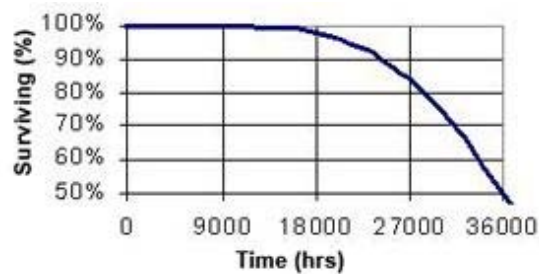
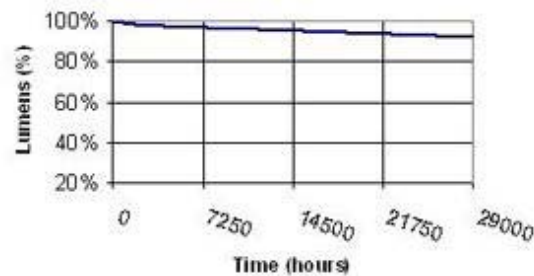
Product Code	46704
Description	F28W/T5/830/ECO
Standard Package	Case
Standard Package GTIN	10043168467046
Standard Package Quantity	40
Sales Unit	Unit
No Of Items Per Sales Unit	1
No Of Items Per Standard Package	40
UPC	043168467049

**COMPATIBLE GE BALLASTS**

Product Code	Description	# of Bulbs	Power Factor	Ballast Factor
<a href="#">99655</a>	GE228MVPS-A	1	99.0	1.09
<a href="#">99653</a>	GE228MVPSH-A	1	99.0	1.21

**CAUTIONS & WARNINGS**

[See list of cautions & warnings.](#)

**Lumen Maintenance****YOU MIGHT ALSO BE INTERESTED IN...****For Energy**

[GE Ecolux® Starcoat® T5](#)

Product code: 71652

- Passes TCLP, which can lower disposal costs.

[COMPARE](#)

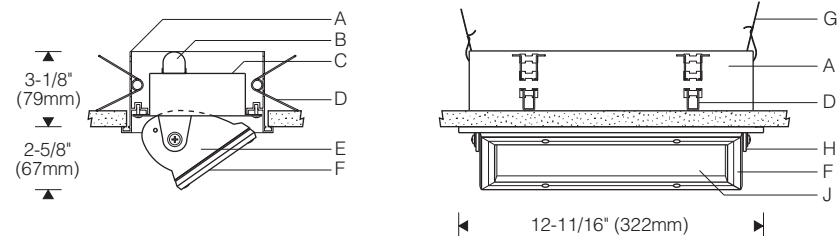
\*Click on product for more specification details

[Return To Top](#)

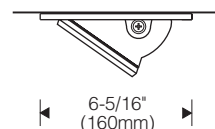
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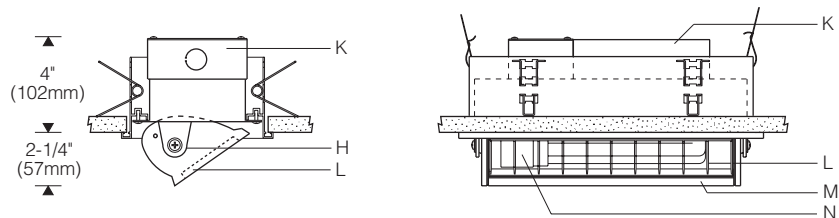
**Style 203** 1:8 Scale (Halogen, metal halide remote)



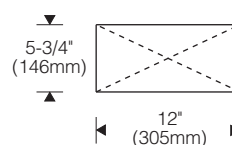
**Profile** (below ceiling)



**Style 206** 1:8 Scale (Quad tube fluorescent, metal halide integral)\*



**Ceiling Cutout**



\* Diagram shows Style 206 for quad tube fluorescent. Snap-in baffle provided for quad tube only. Style 206 for metal halide is provided with door and lens as shown in upper Style 203 diagram.

**Specifications**

- |  |  |   |   |
|--|--|---|---|
| <b>A</b> Extruded aluminum mounting/trim frame | <b>E</b> Die-cast end plates   | <b>H</b> Aluminum yoke arms                                   | <b>L</b> Snap-in polycarbonate baffle (matte gray), 15° shielding (quad tube) |
| <b>B</b> Conduit connector (Style 203)         | <b>F</b> Mitred extruded aluminum door frame, silicone gasket (halogen and metal halide units) | <b>J</b> Tempered glass lens (halogen and metal halide units) | <b>M</b> Specular extruded aluminum reflector                                 |
| <b>C</b> Aluminum back box                     | <b>G</b> Supplemental wire supports (by others)  | <b>K</b> Integral ballast with splice compartment (Style 206) | <b>N</b> Twist and lock lampholder (quad tube)                                |
| <b>D</b> Spring clips (4 incl.)                |  |   |   |

**Finish:**

Semi-gloss white reflector, door, end plates, yoke arms and ceiling trim, with black back box.

Painted surfaces - 6 stage pretreatment and electrostatically applied thermoset powder coat.

Reflector - extruded high purity aluminum with clear anodized specular finish. All luminaire hardware - stainless steel.

**Mounting:**

Mounting/trim frame installs from below finished ceiling. Retrofits into existing non-accessible ceilings.

Spring clips provided for ceilings up to 1-3/4" (44mm) thick.

Supplemental support wires, bar hangers, etc. (by others) required for accessible ceilings. Where wire suspension is prohibited, order accessory universal mounting brackets for use with 1/2" EMT, 1-1/2" lathing or C channel (by others).

**Standard:**

UL listed or CSA certified for damp locations. (TH and MH units with lens recommended for damp location use.)

**Minimum spacings for 200W/250W Style 203, all Style 206:**

2' (0.6m) on center, 1' (0.3m) fixture center to side wall, 3" (76mm) to overhead building member.

**Electrical:**

Use 90°C wire for supply connections.

Style 203 (halogen, metal halide remote) - 5' (1.5m) wire leads in flexible conduit exit back box for connection to accessible junction box (by others), or to remote ballast (installation prior to finished ceiling recommended).

Style 206 (quad tube, 35W/70W metal halide integral) - splice compartment with two 7/8" diameter conduit entries.

Tungsten halogen - DC bayonet or RSC lampholders in patented clamping supports for maximum heat dissipation.

Fluorescent - integral HPF thermally protected electronic ballast with end-of-life protection. Optional dimming ballast; compatible dimmer switch required. Consult representative for compatibility. Twist & lock lampholder for easy relamping.

Metal halide - Style 203 remote: encapsulated high reactance autotransformer ballast (35W and 70W) or electronic ballast.

Style 206 integral (35W, 70W only): electronic ballast provides improved voltage regulation, energy savings and automatic shut-off feature to eliminate end-of-life lamp cycling.

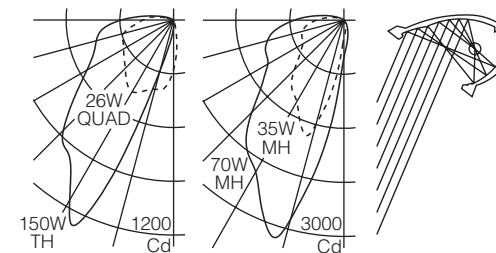
For complete ballast specifications, see Accessories Section.

**Features**

- Adjustable aiming - tailor distribution to the wall height and setback distance
- Shallow recessed depth - fits under ducts at core walls
- Precured silicone gaskets - keep dirt and moisture out, maintain performance (halogen and metal halide)
- Snap-in matte gray baffle - 15° shielding (quad tube)

**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](http://www.elliptipar.com).

**elliptipar**



## To Order

Style 203 / 206

### To form a Catalog Number

1 2 3 4 5 6 7 8 - T - 0 2 - - -




### 1 Source

F = Quad tube compact fluorescent  
M = Metal halide  
T = Tungsten halogen

### 2 Style

**203** = Small semi-recessed adjustable, **remote** ballast  
**Note:** Available for tungsten halogen (no ballast) and metal halide only.  
**206** = Small semi-recessed adjustable, **integral** ballast  
**Note:** Available for quad tube compact fluorescent and 35W & 70W metal halide electronic only.

### 3 Lamp

Lamp Code	Wattage	Lamp Number	Voltages	Remote Distance
Quad Tube Fluorescent 				
P126	26 (4-pin)	CFQ26W/G24q	1, 2	Integral
			T, V	
Ceramic Arc Tube Pulse Start Metal Halide (80+ CRI)* 				
035G	35	CDM35/T6/830	1, 2	15' (4.5m)
			A, B	10' (3m)
070G	70	CDM70/T6/830	1, 2	15' (4.5m)
			A, B	20' (6m)
150G	150	CDM150/T6/830	1, 2	15' (4.5m)
Tungsten Halogen 				
0100	100	Q100DC	A	
0150	150	Q150DC	A	
0200	200	Q200T3	A	
0250	250	Q250DC	A	

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

Project:

### 4 Mounting

T = Overlapping trim

### 5 Finish

02 = Semi-gloss white

### 6 Voltage/Ballast

Compact Fluorescent & Metal Halide Electronic\* (Style 206)

1 = 120V  
2 = 277V

Compact Fluorescent Dimming (Style 206)\*\*

T = 120V  
V = 277V

Tungsten Halogen (Style 203)

A = 120V

Metal Halide (Style 203)

A = 120V magnetic  
B = 277V magnetic  
1 = 120V electronic  
2 = 277V electronic

\* Electronic ballast for 35 and 70W available in Style M206 integral only; for 150W in Style M203 remote only.

\*\*Dimming varies with ballast manufacturer and control type - see [www.elliptipar.com](http://www.elliptipar.com) for specifications and limitations.

### 7 Option (See Accessories Section for specifications)

00 = No options  
0C = Modified to comply with Chicago plenum code.  
0E = Style 206 **remote** emergency battery pack for quad tube fluorescent. Max. distance from battery pack to fixture is 5' (1.5m). For use with non-dim ballasts only.  
0H = Style 203 long distance remote metal halide ballast (encapsulated magnetic ballast for 35 and 70W, electronic ballast for 150W),  
35W: 15' min. up to 50' max. (4.5m - 15m),  
70W: up to 50' max. (15m),  
150W: 15' (4.5m)  
0Y = Style 203 modified to comply with New York City code. (Style 206 integral complies as is without modification.)  
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

**T203 - 0250 - T - 02 - A - 000**

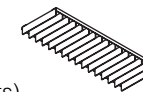
Small semi-recessed adjustable unit for use with 250W tungsten halogen lamp. Overlapping ceiling trim. Semi-gloss white. 120V. UL.

Type:

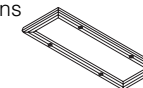
### Accessories

Order separately. See Accessories Section for specifications.

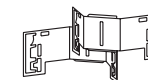
AEBV      000 = External vertical blade **affle**, black (not for use with 250W tungsten halogen or quad tube fluorescent units)  
2 = 25° shielding  
4 = 45°



AUV00020 = **Ultraviolet** (UV) filter glass lens (tungsten halogen and metal halide units only)



ASRBKT00 = Universal **mounting brackets** (set of two), accepts 1/2" EMT, 1-1/2" lathing, C channel or bar hangers (by others)



AFK000X      = Ballast **fuse** kit  
0 = UL  
J = CSA



W  
25.1

# Indoor Ballast Information Metal Halide

Diagram 1

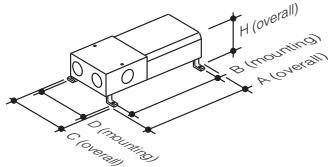


Diagram 2

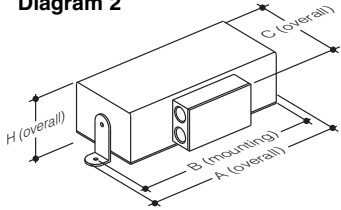


Diagram 3

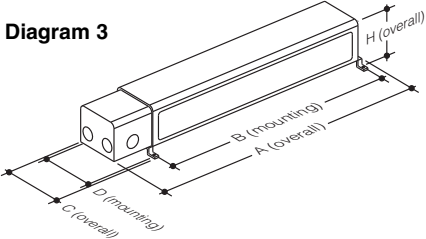


Diagram 4

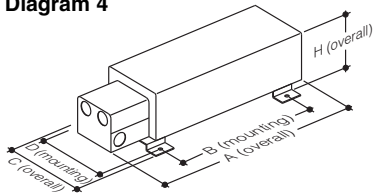
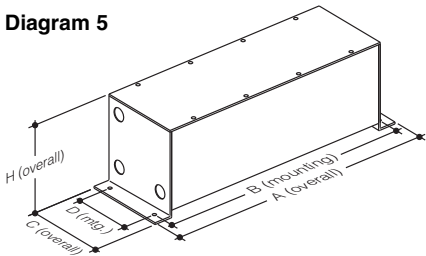


Diagram 5



Lamp Watts	Lamp Code	Voltage Code	Input Voltages	Option (4)	Ballast Type	Remote Distance	Sound Rating	Diagram	Overall Dimension			Mounting Dim.		Notes
									L (A)	W (C)	H (H)	L (B)	W (D)	
35W	035G	1, 2	120-277V	00, V0	electronic	15' (4.5m)	A	1	9-5/16"	4-1/2"	2-1/4"	8-1/2"	4"	(1)
		1, 2	120-277V	0Q, VQ	electronic	15' (4.5m)	A	5	13-7/16"	6-3/8"	4"	12-3/16"	n/a	(1)
		A, B	120/277V	00, V0	HX-HPF, encapsulated	10' (3m)	B	3	14"	4-1/2"	3"	11-1/8"	4"	(1)(2)
		A, B	120/277V	0H, VH	HX-HPF, <b>open</b> core and coil	50' (15m)	n/a	4	13-13/16"	5-3/4"	3-9/16"	9-9/16"	5"	(1)
		A, B	120/277V	0Q, VQ	HX-HPF, encapsulated	10' (3m)	B	5	18-3/8"	4-3/16"	3-5/8"	17-3/8"	3"	(1)
70W	070G	1, 2	120-277V	00, V0	electronic	15' (4.5m)	A	1	9-5/16"	4-1/2"	2-1/4"	8-1/2"	4"	(1)
		1, 2	120-277V	0Q, VQ	electronic	15' (4.5m)	A	5	13-7/16"	6-3/8"	4"	12-3/16"	n/a	(1)
		A, B	120/277V	00, V0	HX-HPF, encapsulated	20' (6m)	B	3	14"	4-1/2"	3"	11-1/8"	4"	(1)(2)
		A, B	120/277V	0H, VH	HX-HPF, encapsulated	50' (15m)	B	3	14"	4-1/2"	3"	11-1/8"	4"	(1)(2)
150W	150G	1, 2	120-277V	00, V0	electronic	15' (4.5m)	A	1	9-5/16"	4-1/2"	2-1/4"	8-1/2"	4"	(1)
		1, 2	120-277V	0Q, VQ	electronic	15' (4.5m)	A	5	13-7/16"	6-3/8"	4"	12-3/16"	n/a	(1)
210W	210C	U	180-305V	00, V0	electronic dimming (100-50%)	30' (9m)	A	5	18-3/8"	5-1/2"	6-1/4"	17-3/16"	4"	(1)
		U	180-305V	0Q, VQ	electronic dimming (100-50%)	30' (9m)	A	5	18-3/8"	5-1/2"	6-1/4"	17-3/16"	4"	(1)
250W	250C	A, B	120/277V	00, V0, 0Q, VQ	CWA, <b>potted</b> core and coil	50' (15m)	B	5	18"	5-1/2"	6-1/4"	17"	4"	
		A, B, E, G	120/208/240/277V	00, V0, 0Q, VQ	CWA, <b>potted</b> core and coil	50' (15m)	n/a	5	18"	5-1/2"	6-1/4"	17"	4"	
	250P	U	180-305V	00, V0	electronic dimming (100-50%)	15' (4.5m)	A	5	16-1/8"	4"	2-3/4"	13-7/8"	2-1/4"	(1)
		U	180-305V	0Q, VQ	electronic dimming (100-50%)	15' (4.5m)	A	5	16-1/8"	4"	2-3/4"	13-7/8"	2-1/4"	(1)
315W	315P	U	180-305V	00, V0	electronic dimming (100-50%)	30' (9m)	A	5	18-3/8"	5-1/2"	6-1/4"	17-3/16"	4"	
		U	180-305V	0Q, VQ	electronic dimming (100-50%)	30' (9m)	A	5	18-3/8"	5-1/2"	6-1/4"	17-3/16"	4"	
320W	320P	A, B, E, G	120/208/240/277V	00, V0	CWA, <b>potted</b> core and coil	50' (15m)	B	5	18-3/8"	5-1/2"	6-1/4"	17-3/16"	4"	
		U	180-305V	00, V0	electronic dimming (100-50%)	15' (4.5m)	A	1	11-3/4"	5-1/4"	2-5/8"	8-7/8"	4-1/2"	
		U	180-305V	0Q, VQ	electronic dimming (100-50%)	15' (4.5m)	A	5	16-1/8"	4"	2-3/4"	13-7/8"	2-1/4"	
350W	350P	A, B, E, G	120/208/240/277V	00, V0	CWA, <b>potted</b> core and coil	50' (15m)	B	5	18-3/8"	5-1/2"	6-1/4"	17-3/16"	4"	
		U	180-305V	00, V0	electronic dimming (100-50%)	15' (4.5m)	A	1	11-3/4"	5-1/4"	2-5/8"	8-7/8"	4-1/2"	(1)
		U	180-305V	0Q, VQ	electronic dimming (100-50%)	15' (4.5m)	A	5	16-1/8"	4"	2-3/4"	13-7/8"	2-1/4"	(1)
400W	400C	A, B, E, G	120/208/240/277V	all	CWA, <b>potted</b> core and coil	50' (15m)	B	5	18-3/8"	5-1/2"	6-1/4"	17-3/16"	4"	
		A, B, E, G	120/208/240/277V	00, V0	CWA, <b>potted</b> core and coil	50' (15m)	n/a	5	18-3/8"	5-1/2"	6-1/4"	17-3/16"	4"	
	400P	U	180-305V	00, V0	electronic dimming (100-50%)	15' (4.5m)	A	1	11-3/4"	5-1/4"	2-5/8"	8-7/8"	4-1/2"	(1)
		U	180-305V	0Q, VQ	electronic dimming (100-50%)	15' (4.5m)	A	5	16-1/8"	4"	2-3/4"	13-7/8"	2-1/4"	(1)
2 x 400W	240C	A, B, E, G	120/208/240/277V	all	(2) CWA, <b>potted</b> core and coil	50' (15m)	B	5	25-3/16"	5-1/2"	6-1/4"	24-3/16"	4"	(3)
		A, B, E, G	120/208/240/277V	00, V0	(2) CWA, <b>open</b> core and coil	10' (3m)	n/a	5	25-3/16"	5-1/2"	6-1/4"	24-3/16"	4"	(3)
	240P	U	180-305V	00, V0	(2) electronic dimming (100-50%)	15' (4.5m)	A	(2) 1	11-3/4"	5-1/4"	2-5/8"	8-7/8"	4-1/2"	(1)(3)
		U	180-305V	0Q, VQ	(2) electronic dimming (100-50%)	15' (4.5m)	A	(2) 5	16-1/8"	4"	2-3/4"	13-7/8"	2-1/4"	(1)(3)

**Notes:** 1) If luminaire to ballast distance is to be greater than lead length provided, limit the total wire length between lamp and ballast to the maximum marked on the ballast. Use UL listed/CSA certified 600V wire sized and enclosed in accordance with local and national electric codes. Do not run wires around sharp corners of grounded metal without an additional insulating sleeve over the "hot" wire. 2) Maximum dimensions are shown for reference only. Exact dimensions vary with ballast manufacturer. 3) Luminaire supplied with two ballasts enclosed in a single housing. 4) See individual data page for complete explanation of option codes.

**Remote Ballast Installation:** • Use wire rated for at least 90°C for supply connections. • When installing more than one ballast in a common area, maintain minimum 6" spacing between ballasts (12" for pulse-start). • Provide installation in area where ballasts are installed.

**PHILIPS**

# MasterColor CDM-T 35W/830 T6 1CT

Keyword search

[+ Advanced search](#)

## MasterColor CDM-T 35W/830 T6 1CT

### Lamp Description

Range of single-ended T6 high-efficiency ceramic metal halide lamps with a stable color over lifetime and a crisp, sparkling light.

- [Download product data sheet](#)
- [Print page](#)

<input type="checkbox"/> Product specs:	<input type="checkbox"/> + Images:	<input type="checkbox"/> + Family info:
<a href="#">MSDS sheets</a>		
<b>PRODUCT DATA</b>		
Product Number	223289	
Full product name	MasterColor CDM-T 35W/830 T6 1CT	
Ordering Code	223289	
Pack type	1 Lamp in a Folding Carton	
Pieces per Sku	1	
Skus/Case	12	
Pack UPC	046677223281	
EAN2US		
Case Bar Code	50046677223286	
Successor Product number		
<b>General Characteristics</b>		
Base	G12	
Bulb	T6 [Diameter: 6/8 inch /19mm]	
Bulb Finish	Clear	
Operating Position	Universal [Any or Universal (U)]	
Packing Type	1CT [1 Lamp in a Folding Carton]	
Packing Configuration	12	
Ordering Code	CDM35/T6/830	



Pack UPC	046677223281
Case Bar Code	50046677223286
ANSI Code HID	M130/E
<b>Electrical Characteristics</b>	
System Power EL	44 W
Watts	35W
Lamp Wattage EL	38 W
Lamp Voltage	88 V
Dimmable	No
<b>Light Technical Characteristics</b>	
Color Code	830 [CCT of 3000K]
Color Rendering Index	81 Ra8
Color Designation	Warm White
Color Description	830 Warm White
Color Temperature	3095 K
Initial Lumens	3300 Lm
Initial Lumens	3150 Lm
Design Mean Lumens	- Lm
<b>Product Dimensions</b>	
Overall Length C	103 mm
Diameter D	20 mm
Light Center Length L	2.21875 in
Max Overall Length (MOL) - C	3.9375 in
Diameter D	0.75 in
<b>Logistic and Packing Data</b>	
Product Number	223289

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
# M60 Recessed Linear Fluorescent Flanged Extrusion - STAGGERED LAMPS



Project: \_\_\_\_\_ Type: \_\_\_\_\_ Qty: \_\_\_\_\_

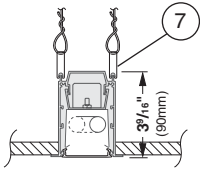
Fixture Series	Lamp Type	Shielding	Mounting	Nominal Length	Finish	Voltage

Options (refer to separate data sheets for ordering codes and details)

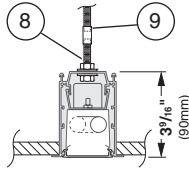
Fixture Series	Lamp Type	Shielding	Mounting	Nominal Length	Finish	Voltage	Options
<b>M6R1S</b> M60 Recessed Continuous Flange (Flanged Extrusion/Flanged Endcaps) Staggered Lamps  <b>M6R2S</b> M60 Recessed Flush End (Flanged Extrusion/Flangeless Endcaps) Staggered Lamps	1T5 F28T5 1T5HO F54T5HO 	OD Extra Diffuse Lens SD Satine Lens	SH Suspension Clips TS 1" Studs (factory installed) RC Rotating Crossbars PM Perimeter Mount	008 8 foot 012 12 foot  For actual lengths see following page. For other lengths, configurations indicate nominal length rounded to the next highest foot. Factory will supply layout drawings. Individual fixtures cannot be field joined.	WH White BK Black SV Silver SP Specify RAL#	120 277 347	TB Lengths to Fit 2' Grid T-Bar Ceiling System (M6R1S only) (qty)EM Stand-by Battery Pack <sup>1</sup> (prefix quantity, i.e. - 5EM) FS Single Fusing DM Dimming <sup>1</sup> (specify system) DMA Digital Addressable Dimming <sup>1</sup> FW Flex Whip (standard) FW1 Flex Whip (dimming) Track Eutrac Standard <sup>2</sup> DL Suitable for Damp Locations Downlights (See MR11 spec sheet, pp.98)
	<p style="text-align: center;"><sup>1</sup>Must be low profile ballasts (1 3/8" W x 1 3/16" H); consult factory for details.    <sup>2</sup>Consult factory for details.</p>						

## Mounting Diagrams

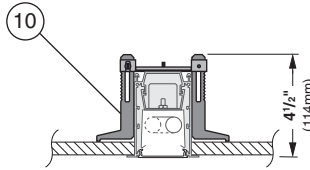
Suspension Clips (SH)



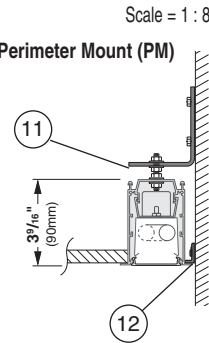
Pre-installed Rod (TS)



Rotating Crossbars (RC)

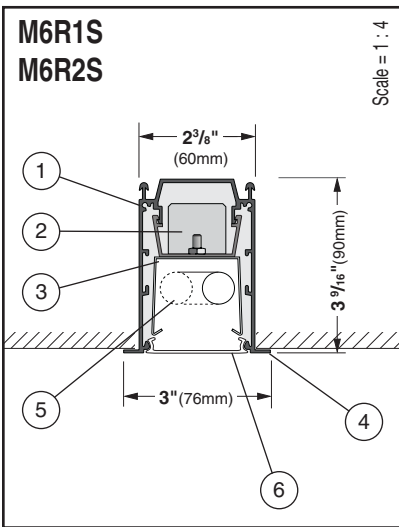
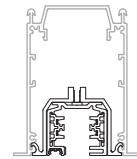


Perimeter Mount (PM)



## Track

Track insert including track available for all configurations, consult factory for details.



**1. Housing** - Continuous, 6063-T5 extruded aluminum profile up to 16 feet long.

**2. Ballast** - Electronic, high power factor, class "P", type "A" sound rating. Specify 120v, 277v, or 347v. Ballast is factory pre-wired with leads to one end of fixture. Consult factory for ballast options.

**3. Gear Tray** - Die formed gear tray with integral factory preset sliding covers to fill extrusion with light, with a matt white finish for even illumination. Geartray installs as complete electrical unit and is held in place with knurled dress nuts. It is fully accessible from below ceiling.

**4. Flange** - 5/16" (8mm) wide flange is part of the main extruded body. Specify flush (M6R2) or flanged end plates (M6R1).

**5. Lamps** - As noted (by others). Other lamp lengths or wattages available, consult factory.

**6. Shielding** - Choose between Extra Diffuse Lens and Satine Lens. See page 8 for more details.

**7. Spring steel suspension clips** - Supplied two places, located nominally every 4 feet. Support wires supplied and installed by others.

**8. Pre-installed 1" 1/4-20 Stud** - Attached to fixture every nominal 4 feet.

**9. Coupling and Threaded Rod to Structure** - Supplied and installed by others.

**10 Rotating Crossbar** - For inaccessible ceilings, adjustable for ceiling thicknesses from 1/4" to 2". Support required nominally every 4'.

**11. Steel Wall Bracket and 1/4-20 Rod** - Supplied nominally every 4 ft. (Fasteners to wall and wall anchors by others.)

**12. Aluminum Wall Bracket** - Secured to wall (fasteners and wall anchors by others) and runs entire length of fixture. Also supplied for width of M6R1 continuous flange fixtures. Allows for 1/8" gap between flange and wall to create shadow line.

**Interior Luminaire Finish** - Standard interior colors are White (WH), Black (BK) and Silver (SV). RAL Classic colors (SP) are available, please specify RAL#.

SELUX Corp. © 2006  
 TEL: (845) 691-7723  
 FAX: (845) 691-6749  
 www.selux.com/usa  
 M6R1S-01 (v5.0)

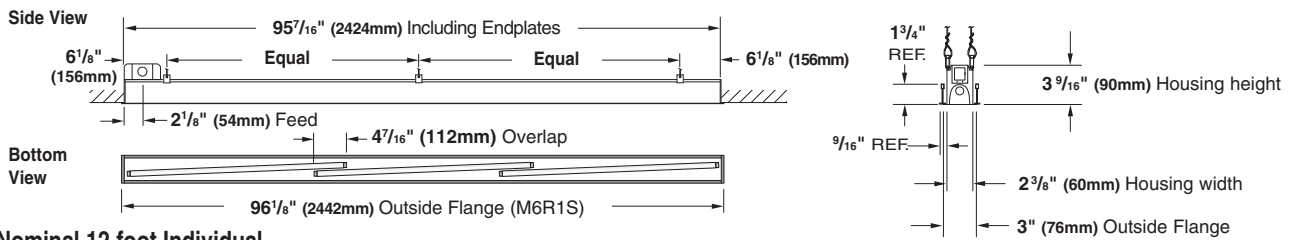


Union Made Affiliated  
 with IBEW Local 363

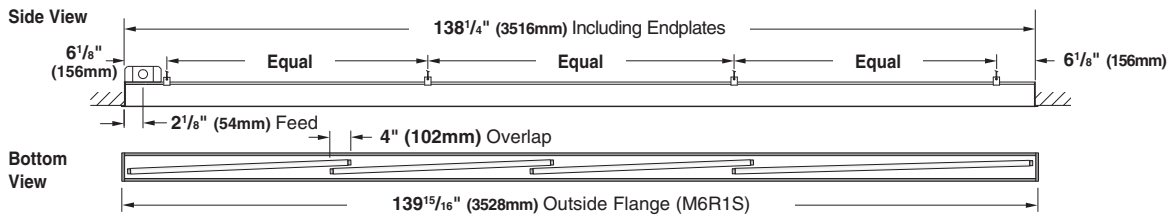
In a continuing effort to offer the best product possible, we reserve the right to change, without notice, specifications or materials that in our opinion will not alter the function of the product. Specification sheets found at www.selux.com/usa are the most recent versions and supercede all other printed or electronic versions.

## M6R1S/M6R2S (Single Staggered Lamps) Standard Layout Dimensions

### Nominal 8 foot Individual

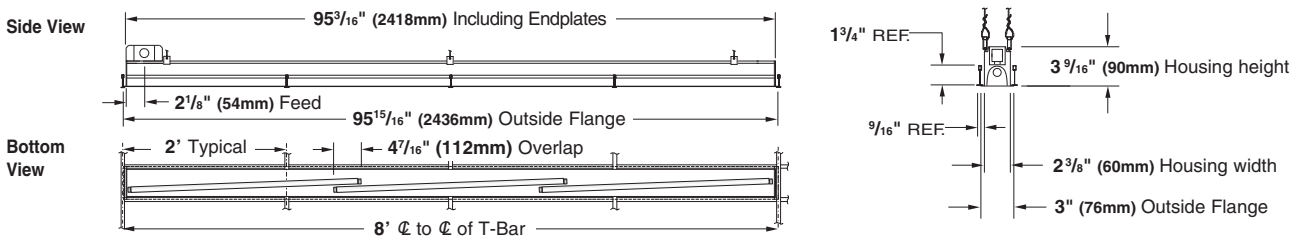


### Nominal 12 foot Individual

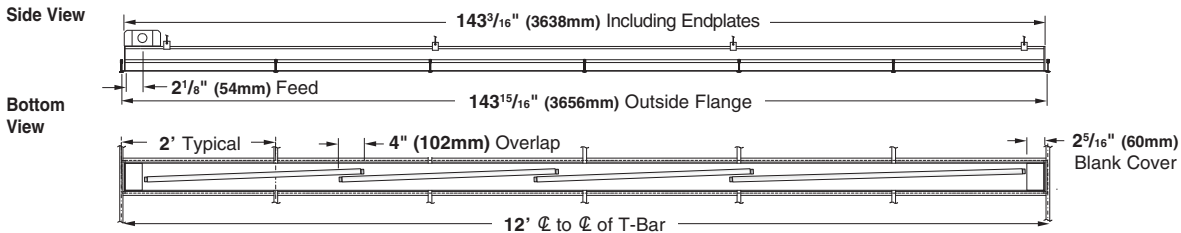


## M6R1S (Single Staggered Lamps) T-Bar Layout Dimensions (option - TB)

### Nominal 8 foot Individual



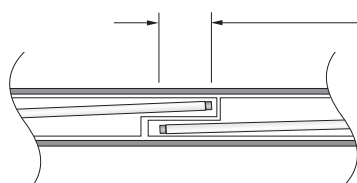
### Nominal 12 foot Individual



Fixture supplied with 7/8 knockout located 2 1/8" from end in top of fixture.

For other lengths, lamping, continuous runs or configurations please specify overall length (in feet), accessories desired and sketch/drawing of configuration. SELUX will detail project drawings upon order and supply submittal drawings for approval. Individual fixtures cannot be field joined. If you have any questions please contact SELUX customer service or applications engineering for assistance (1-800-SELUX-CS).

## Staggered Lamps Principle



Lamps are spaced with 4" to 6" overlap to completely illuminate luminaire and eliminate socket shadows. Factory will supply approval drawings for other lengths using combinations of 21W & 28W T5 lamps or 39W & 54W T5HO lamps.

Minimal socket shadows may be visible at certain angles. Refer to pages 6 and 8 for more information.

## 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.

### 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



### 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)

<b>Job Name:</b> <input style="width: 90%; height: 20px;" type="text"/>	<b>Model Numbers:</b> <input style="width: 95%; height: 20px;" type="text"/>	
<b>Job Number:</b> <input style="width: 100px; height: 20px;" type="text"/>	<input style="width: 95%; height: 20px;" type="text"/>	<input style="width: 95%; height: 20px;" type="text"/>

## Specifications

### Performance



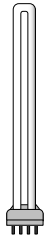
- Dimming Range: 100% to 10% measured relative light output
- Lamp Starting: programmed rapid start
- Minimum Lamp Starting Temperature: 10 °C (50 °F)
- Ambient Temperature Operating Range: 10 °C (50 °F) to 60 °C (140 °F)
- Relative Humidity: maximum 90% non-condensing
- Operating Voltage: 120 V or 277 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

<b>Job Name:</b> <input style="width: 90%; height: 20px;" type="text"/>	<b>Model Numbers:</b> <input style="width: 60%; height: 20px;" type="text"/> <input style="width: 35%; height: 20px;" type="text"/>	
<b>Job Number:</b> <input style="width: 100%; height: 20px;" type="text"/>	<input style="width: 100%; height: 20px;" type="text"/>	<input style="width: 100%; height: 20px;" type="text"/>

### Eco-10 Ballast Models

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
<b>T5 linear</b>   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
<b>T5-HO linear high output</b>   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
<b>T5 Twin-Tube</b>   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



<b>Job Name:</b> <input type="text"/>	<b>Model Numbers:</b> <input type="text"/>	
<b>Job Number:</b> <input type="text"/>	<input type="text"/>	<input type="text"/>

# PENTRON PREMIER™ ECOLOGIC® LAMPS

## T5 Linear Fluorescent Lamps



- Improved phosphor blend yields brighter PENTRON lamps
  - 3050 lumens at 35°C for FP28/PM lamps
- QUICK 60+® system warranty when operated on OSRAM SYLVANIA QUICKTRONIC® ballasts including the .95BF, 1.15BF and QUICKSTEP® T5 ballasts
- Multiple ballast factor choices, including a stepped switching ballast provide design flexibility as well as extreme system efficiency (as high as 100 LPW)
- Passes the Federal TCLP test
- 3000K, 3500K, 4100K and 85 CRI
- 95% lumen maintenance
- 20,000 hours average rated life

SYLVANIA PENTRON PREMIER T5 ECOLOGIC fluorescent lamps pass the Federal Toxicity Characteristic Leaching Procedure (TCLP) criteria<sup>1</sup> for classification as non-hazardous waste in most states<sup>2</sup>.



**A dramatic improvement in the developing line of slender, 5/8" diameter, T5 linear fluorescent sources, the PENTRON PREMIER™ ECO® lamps provide increased lumen output, the highest in the industry, with an astonishing 109 lamp lumens per watt**

Greater system flexibility is achieved when PENTRON PREMIER lamps are combined with the new series of OSRAM SYLVANIA QUICKTRONIC PENTRON ballasts achieving a varied lumen package depending upon the application.

PENTRON PREMIER T5 lamps also present the greatest opportunity for luminaire efficiency. The 5/8" diameter affords superior optical control achieving precision distribution in a well designed luminaire.

1. TCLP test results are based on NEMA LL Series standards and are available on request.
2. Lamp disposal regulations may vary; check your local & state regulations.

### Product Availability

NAED Code	Ordering Description
20948	FP28/830/PM/ECO
20943	FP28/835/PM/ECO
20944	FP28/841/PM/ECO

### Application Information

#### Applications

Office  
Schools  
Commercial  
Retail  
Hospitality  
Institutional  
New Construction  
Renovation

#### Application Notes

1. PENTRON PREMIER lamps are about 2" shorter than T8 and T12 bi-pin lamps.
2. Miniature bi-pin (T-5) base will not install into T8 and T12 sockets.
3. Miniature bi-pin (T-5) base requires UL listed 600 Volt rated sockets.
4. Requires high-frequency programmed rapid start electronic ballasts equipped with end-of-life sensing circuit.
5. Apply thermal factor in calculations for exterior or unheated applications.



### Sample Specification

Lamp(s) shall be PENTRON PREMIER™ ECO® T5 lamps having 2730 rated lumens at 25°C, 3050 lumens at 35°C and 95% lumen maintenance. Lamps shall have a correlated color temperature of (3000K, 3500K, 4100K) and a color rendering index of 85. Lamps shall be operated on OSRAM SYLVANIA QUICKTRONIC® ballast and a complete system warranty from a single manufacturer shall cover both lamps and ballasts.

### Lamp System Comparison

Lamp	Ballast	Input Watts	Initial System Lumens	Initial System LPW	Avg. Rated Life
F34T12	ES Magnetic	72	4660	65	20,000
F32T8/700 - 3 lamps	3 Lamp IS	88	7525	86	15,000
FP28PM/ECO	QTP2X28/UNV PS95SC	60/58*	5795	97/100*	20,000
FP28PM/ECO	QTP2X28/UNV PS115SC	73/71*	7015	96/99*	20,000

\*operated at 120V/operated at 277V

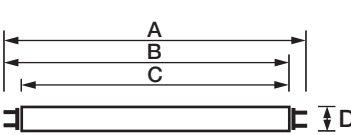
### Ordering and Specification Information

NAED Number	Ordering Abbreviation	Base	Watts	Initial Lumens @25°C	Initial Lumens @35°C	Bulb	Nominal Length (mm)	Avg. Rated Life	Color Temp	CRI
20948	FP28/830/PM/ECO	Min Bi-pin	28	2730	3050	T5	1149	20,000	3000K	85
20943	FP28/835/PM/ECO	Min Bi-pin	28	2730	3050	T5	1149	20,000	3500K	85
20944	FP28/841/PM/ECO	Min Bi-pin	28	2730	3050	T5	1149	20,000	4100K	85

### Ordering Guide

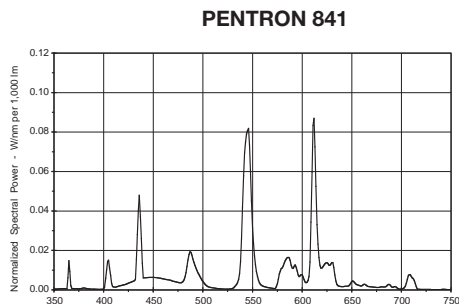
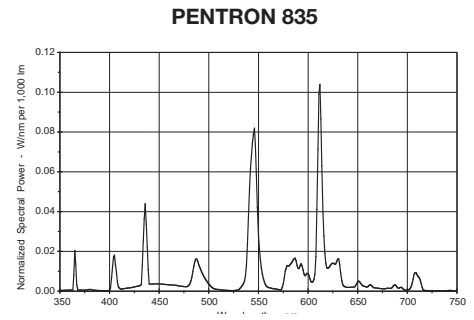
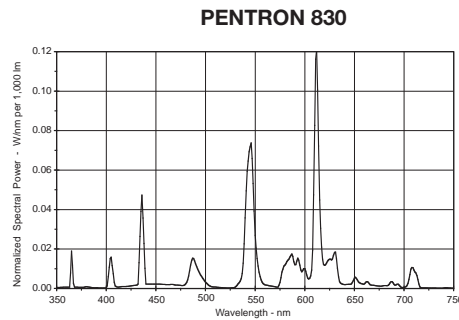
FP	28	/	8	35	/	PM	/	ECO
Fluorescent	Wattage		CRI	Color Temperature		PENTRON PREMIER™		ECOLOGIC®
PENTRON T5	28 watts		8 = 85	30 = 3000K 35 = 3500K 41 = 4100K				

### Dimensions

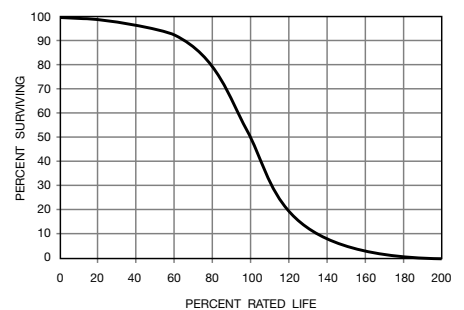


Lamp	(A) Maximum Overall Length in. (mm)	(B) Max. Base Face to Opposite Pin in. (mm)	(C) Max. Base Face to Base Face in. (mm)	(D) Max. Outside Diameter in. (mm)
FP28	45.80" (1163.2)	45.52" (1156.1)	45.24" (1149.0)	0.67" (17.0)

### Technical Information



### Typical Fluorescent Lamp Mortality



OSRAM SYLVANIA  
National Customer  
Service and Sales Center  
18725 N. Union Street  
Westfield, IN 46074  
1-800-LIGHTBULB  
(1-800-544-4828)

Visit our website: [www.sylvania.com](http://www.sylvania.com)





# PIMpendant

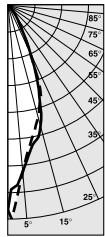
INCANDESCENT



**photometric data**

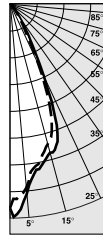
— 0° (parallel)  
 - - - 90° (normal)

Additional photometric test files are available at [www.originslighting.com](http://www.originslighting.com)



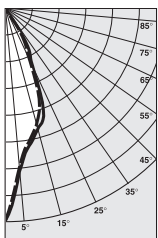
CANDELA			
DEGREES	AT 0°	AT 90°	FOOT-LAMBERTS
90	0	0	
85	0	0	0
75	2	2	124
65	14	17	587
55	52	43	1325
45	131	139	3055
35	495	500	
25	1772	1676	
15	4245	3944	
5	5669	5698	
0	6934	6934	

**PIM6250P38-CS**  
 Clear Specular Reflector  
 Report Number: 21408-R  
 Lamp: 250W PAR38/FL  
 Total Lumens: 3600  
 Fixture Efficiency: 82.7%  
 IES File: F21408-R.IES  
 S/MH Ratio: 0.6, 0.6  
 Beam Angle: 36.93



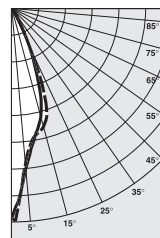
CANDELA			
DEGREES	AT 0°	AT 90°	FOOT-LAMBERTS
90	0	0	
85	0	0	0
75	0	0	0
65	0	0	0
55	8	5	102
45	58	41	630
35	458	378	
25	2598	2189	
15	5085	4794	
5	6300	6098	
0	6734	6734	

**PIM8250P38-CS**  
 Clear Specular Reflector  
 Report Number: 21654-R  
 Lamp: 250W PAR38/FL  
 Total Lumens: 3600  
 Fixture Efficiency: 95.3%  
 IES File: F21654-R.IES  
 S/MH Ratio: 0.8, 0.7  
 Beam Angle: 45.51



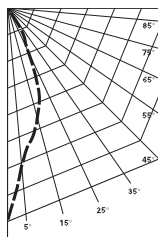
CANDELA			
DEGREES	AT 0°	AT 90°	FOOT-LAMBERTS
90	0	1	
85	0	1	92
75	1	1	62
65	5	5	189
55	44	41	1186
45	174	140	3553
35	910	787	
25	2270	2066	
15	4067	3920	
5	5314	5216	
0	6905	6905	

**PIM6250P38-FCS**  
 Faceted Clear Specular Reflector  
 Report number: 23735-R  
 Lamp: 250PAR38/FL  
 Fixture Efficiency: 94.4%  
 S/MH Ratio: 0.6, 0.6  
 Total Lumens: 3600  
 IES file: F23735-R.IES  
 Beam Angle: 39.24



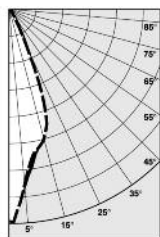
CANDELA			
DEGREES	AT 0°	AT 90°	FOOT-LAMBERTS
90	0	0	
85	0	0	0
75	0	0	0
65	1	1	21
55	4	3	55
45	74	61	859
35	318	348	
25	1841	1921	
15	4913	5351	
5	7018	6846	
0	9173	9173	

**PIM8250P38-FCS**  
 Faceted Clear Specular Reflector  
 Report number: 23746-R  
 Lamp: 250PAR38/FL  
 Fixture Efficiency: 84.9%  
 S/MH Ratio: 0.5, 0.6  
 Total Lumens: 3600  
 IES file: F23746-R.IES  
 Beam Angle: 34.60



CANDELA			
DEGREES	AT 0°	AT 90°	FOOT-LAMBERTS
90	4	4	
85	7	7	1285
75	19	18	1144
65	34	32	1249
55	68	65	1855
45	175	153	3711
35	803	676	
25	1879	1774	
15	3829	3697	
5	5334	5129	
0	6864	6864	

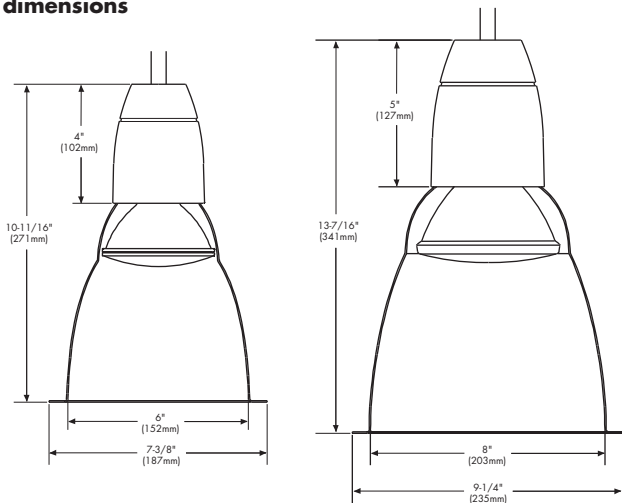
**PIM6250P38-FCS-FLR**  
 Faceted Clear Specular Reflector with Floating Luminous Ring  
 Report number: 23733-R  
 Lamp: 250PAR38/FL  
 Fixture Efficiency: 88.2%  
 S/MH Ratio: 0.5, 0.5  
 Total Lumens: 3600  
 IES file: F23733-R.IES  
 Beam Angle: 35.30



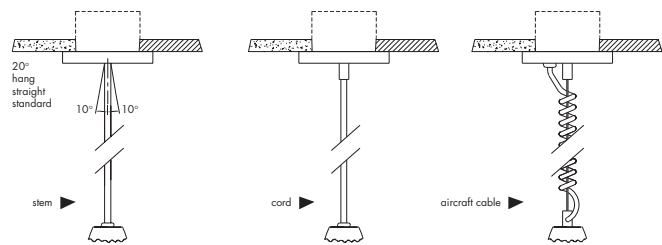
CANDELA			
DEGREES	AT 0°	AT 90°	FOOT-LAMBERTS
90	5	5	
85	8	8	826
75	21	22	748
65	38	38	809
55	54	54	847
45	119	104	1419
35	220	229	
25	1489	1505	
15	4738	5176	
5	6843	6777	
0	8266	8266	

**PIM8250P38-FCS-FLR**  
 Faceted Clear Specular Reflector with Floating Luminous Ring  
 Report number: 23747-R  
 Lamp: 250PAR38/FL  
 Fixture Efficiency: 82.0%  
 S/MH Ratio: 0.6, 0.6  
 Total Lumens: 3600  
 IES file: F23747-R.IES  
 Beam Angle: 35.93

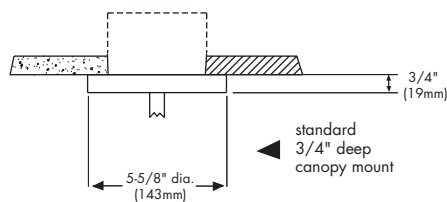
**dimensions**



**suspension methods**



**canopy mount dimensions**



OR1-3

776 SOUTH GREEN ST., TUPELO, MS 38804 · PHONE 662.842.7212 · FAX 662.841.5501 · WWW.CAPRIOMEGALIGHTING.COM  
 CANADIAN DIVISION: 189 BULLOCK DRIVE, MARKHAM, ONTARIO, CANADA L3P 1W4 · PHONE 905.294.9570 · FAX 800.268.0003  
 WWW.ORIGINSLIGHTING.COM 8/08



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GE Edison™ PAR20



- Edison™ halogen bulbs provide a brighter, crisper light that makes your home look its best
- That's why professionals choose Edison for exceptional results and longer bulb life.
- Showcase the beauty of your home with the highest quality of light.



Energy Savings

**GENERAL CHARACTERISTICS**

Lamp type	Halogen - PAR
Bulb	PAR20
Base	Medium NP
Filament	CC-8
Wattage	50
Voltage	120
Rated Life	3000 hrs
Primary Application	Indoor Floodlight

Bulb



Package

[View Larger](#)**PHOTOMETRIC CHARACTERISTICS**

Initial Lumens	570
Center Beam Candlepower (CBCP)	1500
Color Temperature	2800 K
Nominal Initial Lumens per Watt	11

**ADDITIONAL RESOURCES**[Catalogs](#)[Testimonials](#)[MSDS \(Material Safety Data Sheets\)](#)[Disposal Policies & Recycling Information](#)**DIMENSIONS**

Maximum Overall Length (MOL)	3 1/8
Bulb Diameter (DIA)	2 1/2

**PRODUCT INFORMATION**

Product Code	14928
Description	50PAR20H/FL25
Standard Package	Case
Standard Package GTIN	00043168149280
Standard Package Quantity	6
Sales Unit	Unit
No Of Items Per Sales Unit	1
No Of Items Per Standard Package	6
UPC	043168900980

**⚠ CAUTIONS & WARNINGS**[See list of cautions & warnings.](#)

\*Twenty month life based on rated life at 4 hours/day.

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## Surface washers for horizontal surfaces

**Post construction:** One piece trapezoidal extruded aluminum,  $\frac{3}{16}$ " wall thickness with one piece die-cast aluminum top housing and base, internally welded into an assembly.

**Lamp enclosure:** Clear tempered glass,  $\frac{1}{8}$ " thick. One piece die-cast aluminum faceplate secured by four (4) socket head stainless steel screws threaded into stainless steel inserts. Internal asymmetrical reflector/optical system. Fully gasketed using a molded "O-ring" high temperature silicone rubber gasket.

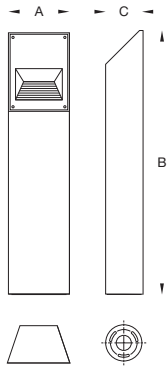
**Electrical:** Lampholders: Metal Halide are G8.5, bi-pin. Ballasts are located on an upright bracket attached to the anchor base and are electronic, available in 120V or 277V - specify.

**Anchor base:** Heavy cast aluminum, slotted for precise alignment. Mounts to BEGA Kit F anchorage kit (supplied). Bollards are secured to the post with one (1) socket head stainless steel screw.

**Finish:** Available in five standard BEGA colors: Black (BLK); White (WHT); Bronze (BRZ); Silver (SLV); Eurocoat™ (URO). To specify, add appropriate suffix to catalog number. Custom colors supplied on special order.

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

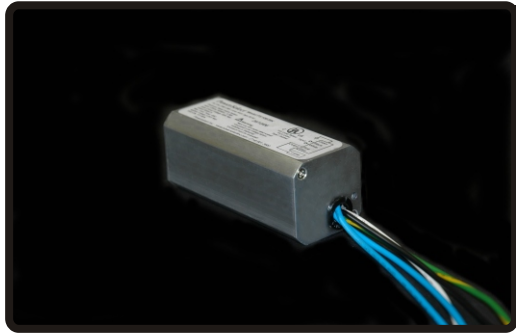
Type:  
 BEGA Product:  
 Project:  
 Voltage:  
 Color:  
 Options:  
 Modified:



Lamp	Lumen	A	B	C	Anchorage
<b>8524 MH</b>	1 20W T4 G8.5 MH	1700	6 $\frac{3}{8}$	31 $\frac{1}{2}$	4 $\frac{3}{8}$ <b>Kit F</b>

# 120Vac & 277V 20W/39W Mini Stick Electronic Metal Halide Ballast

## Model PS10B20K & PS10B39K



## Model PS10D20K & PS10D39K



### INPUT SPECIFICATIONS

● Vac	95-135 Vac
● PS10B20K Amp's	0.20A @ 20W
● PS10B39K Amp's	0.35A @ 39W
● Frequency	50/60Hz
● THD	<10% (7% Typ.)
● Power Factor	>98%
● Vac	208-277 Vac
● PS10D20K Amp's	0.09A @ 20W
● PS10D39K Amp's	0.15A @ 39W
● Frequency	50/60Hz
● THD	<15% (11% Typ.)
● Power Factor	>96%

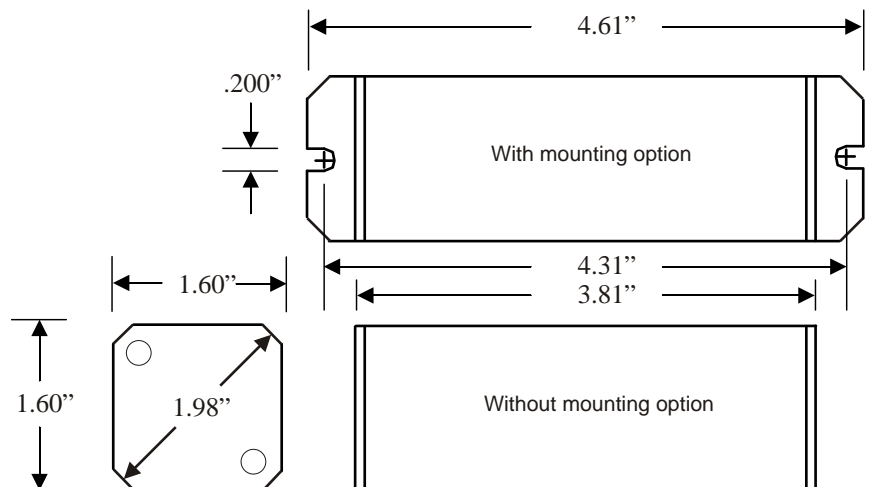
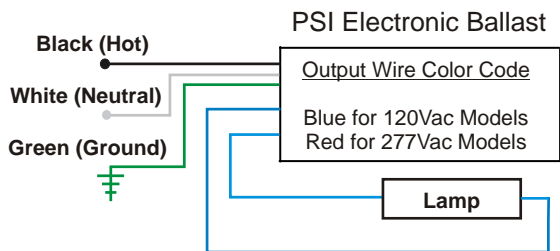
### OUTPUT SPECIFICATIONS

● PS10B20K, PS10D20K Lamp Power	20W +/- 2%
● PS10B39K, PS10D39K Lamp Power	39W +/- 2%
● Lamp Drive Frequency	150Hz +/-10%
● Lamp Current Crest Factor	<1.2
● Open Circuit Voltage	>300V Square Wave
● Ignitor Voltage @ Ballast Leads	>3.8KV
● Ignition Failure Timeout	30 Min. Shutdown
● Maximum distance from Ballast	2.5M or (8.2 feet) Max.
● Compatible 39W ANSI Lamp Types	M130
● Compatible 20W ANSI Lamp Types	M156

### MECHANICAL / ENVIRONMENTAL

- Enclosure Overall Dimensions 'both Models'
- Unit Weight
- Operating Temperature
- EMI / RFI Compliance
- Sound Rating
- UL / CUL Listed
- Warranty up to 5 years.

3.81" L x 1.60" W x 1.60" H 'Also available with Feet'  
 16.8oz.  
 Min. Temp -30°C - Max. Temp 90°C  
 FCC Part 18  
 Rated 'A'  
 File #E173598

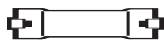
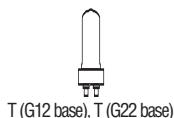
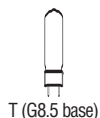


**PowerSelect Inc.**

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PSI reserves the right to modify any specifications without notice.. Revised 01-17-08





## POWERBALL® CERAMIC METALARC® TUBULAR SINGLE-ENDED High CRI, Pulse Start, UV Stop – Enclosed Fixtures Only

Watts	Bulb	Base	Product Number	Ordering Abbreviation	ANSI Code	Pkg Qty	Lamp Finish	Operating Position	Fix Req	Avg Rated Life (hrs)	Approx Lumens (initial)	Lumens (mean)	CRI	CCT (K)	Symbols & Footnotes
20	T4.5	G8.5	64882	MC20TC/U/G8.5/830PB	M156/E	12	Clear	Universal	E	12000	1700	1275	83	3000	1,4,18,24,25,30,48
39	T4.5	G8.5	64791	MC39TC/U/G8.5/830PB	M130/E	12	Clear	Universal	E	12000	3400	2720	82	3000	1,4,18,24,25,30,48
	T6	G12	64363	MC39T6/U/G12/830PB	M130/E	12	Clear	Universal	E	12000	3400	2720	82	3000	1,4,18,24,25,30,48
			64325	MC39T6/U/G12/940PB	M130/E	12	Clear	Universal	E	12000	3300	2640	90	4200	1,4,18,24,25,26,30,48
70	T4.5	G8.5	64825	MC70TC/U/G8.5/930PB	M139/E, M98/E	12	Clear	Universal	E	12000	6300	5040	95	3000	1,4,18,24,25,26,30,48
	T6	G12	64361	MC70T6/U/G12/830PB	M139/E, M98/E	12	Clear	Universal	E	12000	7000	5600	87	3000	1,4,18,24,25,26,30,48
			64200	MC70T6/U/G12/930PB	M139/E, M98/E	12	Clear	Universal	E	12000	6400	5120	95	3000	1,4,18,24,25,26,30,48
			64338	MC70T6/U/G12/940PB	M139/E, M98/E	12	Clear	Universal	E	12000	6700	5360	93	4200	1,4,18,24,25,26,30,48
150	T7.5	G12	64359	MC150T7.5/U/G12/830	M102/E, M142/E	12	Clear	Universal	E	12000	15500	12400	89	3000	1,4,18,24,30,31,48
			64337	MC150T7.5/U/G12/940PB	M102/E, M142/E	12	Clear	Universal	E	12000	14500	11600	95	4200	1,4,18,24,30,31,48
250	T9	G22	64167	MC250T9/U/G22/830PB	M80/E	10	Clear	Universal	E	12000	24500	19600	86	3000	1,4,18,24,30,31,48

## POWERBALL® CERAMIC METALARC® TUBULAR DOUBLE-ENDED

Watts	Bulb	Base	Product Number	Ordering Abbreviation	ANSI Code	Pkg Qty	Lamp Finish	Operating Position	Fix Req	Avg Rated Life (hrs)	Approx Lumens (initial)	Lumens (mean)	CRI	CCT (K)	Symbols & Footnotes
70	T6	RX7s RSC	64793	MC70T6/DE/830PB	M139/E, M85/E, M98/E	12	Clear	HOR ± 45°	E	12000	6900	5520	88	3000	1,4,18,25,26,30,35,48
150	T7.5	RX7s RSC	64794	MC150T7.5/DE/830PB	M102/E, M142/E, M81/E	12	Clear	HOR ± 45°	E	12000	14800	11840	91	3000	1,4,18,30,37,48

## POWERBALL® CERAMIC METALARC® PAR High CRI, Pulse Start, UV Stop – Open or Enclosed Fixtures

Watts	Bulb	Base	Product Number	Ordering Abbreviation	ANSI Code	Pkg Qty	Beam Type	Beam Angle	Operating Position	Fix Req	Avg Rated Life (hrs)	MBCP	Approx Lumens (initial)	CRI	CCT (K)	Symbols & Footnotes
20	PAR30LN	E26 Med	64879	MCP20PAR30LN/U/830/SP/ECOPB	M156/O	6	SP	10°	Universal	O	12000	24000	1200	82	3100	1,4,7,17,24,30,48
			64878	MCP20PAR30LN/U/830/FL/ECOPB	M156/O	6	FL	30°	Universal	O	12000	4000	1200	82	3100	1,4,7,17,24,30,48
39	PAR20	E26 Med	64824	MCP39PAR20/U/830/SPPB	M130/O	12	SP	10°	Universal	O	12000	20000	2000	87	3000	1,4,17,24,25,30,48
			64826	MCP39PAR20/U/830/FLPB	M130/O	12	FL	30°	Universal	O	12000	5000	2000	87	3000	1,4,17,24,25,30,48
	PAR30LN	E26 Med	64880	MCP39PAR30LN/U/830/SP/ECOPB	M130/O	6	SP	10°	Universal	O	12000	39600	2300	85	3000	1,4,7,17,24,25,30,48
			64881	MCP39PAR30LN/U/830/FL/ECOPB	M130/O	6	FL	30°	Universal	O	12000	8000	2300	85	3000	1,4,7,17,24,25,30,48



**DESCRIPTION**

Recessed lens wall wash luminaire with 4 inch square aperture utilizing horizontal T6 G12 ceramic metal halide lamp. Modular platform can be reconfigured from below the ceiling to accept a broad range of lamp modules and optical elements. Platform is suitable for shallow plenum commercial construction. Insulation must be kept 3" from top and sides of housing. Platform + module + element combination produces smooth vertical illumination with a minimal downlight component.

<b>Catalog #</b>		<b>Type</b>
<b>Project</b>		
<b>Comments</b>		<b>Date</b>
<b>Prepared by</b>		

**SPECIFICATION FEATURES**

**Frame**

Galvanized steel plaster frame with integral bar hanger receivers. Setscrews provide positive horizontal locking.

**Collar**

Matte black steel collar adjusts vertically for 1/2" - 1" thick ceilings and can be rotated +/- 7.5° thru the aperture. Integral gun sights facilitate the use of guide strings or laser lines. Shipped with a paint overspray protector installed in the collar.

**Lamp Module**

Installed or removed thru the aperture or from the top and allows lamp orientation at 0°, 90°, 180° and 270° positions.

**Housing**

Steel housing painted matte black for a visually dark interior. Removable hinged top allows for top access. All fasteners are captive.

**Gaskets**

Closed cell gaskets achieve restrictive airflow requirements without additional caulking.

**Optical Element**

Mousetrap type springs pull flange tight to ceiling. Light trap eliminates spill light at edge of flange and reflector. Available in self-flanged or metal trim ring versions. May also be installed rimless using optional plastering lathing ring.

**Bar Hangers**

Captive preinstalled bar hangers adjusts from 8-1/2" to 24" wide; pass thru feature allows shortening without removal. Captive nail penetrates standard and engineered lumber. Mounting flange levels platform with ceiling. Integral clip attaches directly to t-bar.

**Butterfly Bracket**

Provides 3" of vertical adjustment and accept 1/2" EMT, C channel or bar hangers.

**Primary Reflector**

Miro® segmented upper reflector. Accepts 20W, 39W or 70W T6 G12 ceramic metal halide lamps and will not accept lower CRI lamp type.

**Lower Reflector**

Specular aluminum kicker reflector integral with angle cut parabolic shielding prismatic and glass spread lens. Provides smooth vertical illumination with a minimal downlight component. Available in a wide range of semi specular Alzak® finishes.

**Junction Box**

(7) 1/2" trade size pry outs, (3) integral clamps for non-metallic cable. Rated for (8) #12 thru branch circuits. Wago® type push wire connectors for field connections

**Ballast**

Universal input electronic ballast provides full light output and rated lamp life. Provides noise free operation and starting. Offers excellent line voltage regulation resulting in increased color stability and flicker free operation.

**Thermal Protector**

Self-resetting thermal protector protects against improper lamping and direct contact with insulation.

**Lamp Socket**

Pulse rated ceramic G12 lampholder connects to ballast with electrical quick connects.

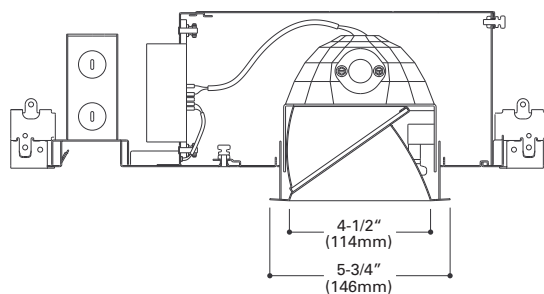
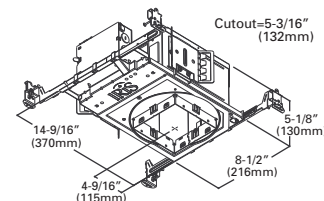
**Code Compliance**

Thermally protected and cULus listed for protected wet locations and ASTM-E283 AIRTITE(tm).



**P406TAT**  
**MH4CMH20T6E**  
**MH4CMH39T6E**  
**MH4CMH70T6E**  
**E4LWW**  
**20/39/70W T6**  
**Ceramic Metal**  
**Halide**

**4 Inch Square Lens Wall Wash**

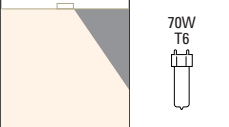


ENERGY DATA		Min. Starting Temp -30°C	
Sound Rating Class A	EM/RFI Emissions FCC 18C		
Input Frequency 50/60 Hz	Power Factor > 0.99		
Input Voltage 108V - 305V THD < 10%			
20W	Input Power	24W	Nominal
	Input Current	120V 0.20A	277V 0.09A
39W	Input Power	44W	Nominal
	Input Current	120V 0.37A	277V 0.16A
70W	Input Power	77W	Nominal
	Input Current	120V 0.65A	277V 0.28A

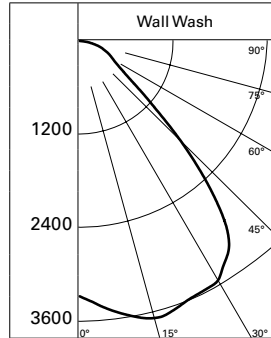
**ORDERING INFORMATION:** Complete unit consists of platform, lamp module and optical element.

Platform	Lamp Module	Ballast Option	Optical Element	Finish	Flange	Accessories
	<b>MH4CMH</b>					
<p><b>P406TAT</b> = 4" Square Aperture Non-IC Housing</p> <p><b>P406TCP</b> = 4" Square Aperture Non-IC Chicago Plenum Housing</p>	<p><b>MH4CMH</b> = Horizontal Ceramic Metal Halide, Lamp Module</p>	<p><b>20T6E</b> = 20W T6 G12 CMH 120-277 UNV</p> <p><b>39T6E</b> = 39W T6 G12 CMH 120-277 UNV</p> <p><b>70T6E</b> = 70W T6 G12 CMH 120-277 UNV</p>		<p><b>Alzak® Finishes</b></p> <p><b>H</b> = Clear Haze</p> <p><b>WMH</b> = Warm Haze</p> <p><b>WHH</b> = Wheat Haze</p> <p><b>KH</b> = Cognac Haze</p> <p><b>GPH</b> = Graphite Haze</p> <p><b>CTH</b> = Cobalt Haze</p> <p><b>CCH</b> = Chocolate Haze</p> <p><b>BH</b> = Black Haze</p> <p><b>Painted Finishes</b></p> <p><b>MW</b> = Matte White</p> <p><b>MB</b> = Matte Black</p>	<p><b>[Blank]</b> = Metal Trim Ring, Matte White</p> <p><b>SF</b> = Self Flanged</p> <p><b>SFWF</b> = Self Flanged, Matte White Flange</p>	<p><b>PLR4x4</b> = Plaster lathing ring for rimless</p> <p><b>RLA4x4</b> = Rimless adapter for solid ceiling surfaces</p> <p><b>MTR4MW</b> = Metal trim ring, matte white</p> <p><b>MTR4MB</b> = Metal trim ring, matte black</p> <p><b>MTR4SN</b> = Metal trim ring, satin nickel</p> <p><b>MTR4AC</b> = Metal trim ring, antique copper</p> <p><b>MTR4TBZ</b> = Metal trim ring, tuscan bronze</p>
		<p><b>E4LWW</b> = 4" Aperture Lower Shielding Prismatic, Lens Wall Wash</p>				

**Photometric Results**

Efficiency = 51.0%
Test No. P11176 Platform = P406TAT Element = E4LWWH Lumens = 6600 Lamp = CMH70/T6/G12


**Candlepower Distribution**



**Candelas**

CD Wall	Vertical Angle
0	90
42	85
246	75
428	65
687	55
1901	45
3324	35
3582	25
3676	15
3421	5
3271	0

**Zonal Lumens Summary**

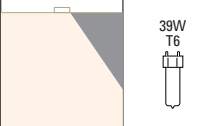
Zone	Lumens	% Lamp	% Luminaire
0- 30	1854	28.1	55.1
0- 40	2527	38.3	75
0- 60	3177	48.1	94.3
0- 90	3368	51	100
90-180	0	0	0
0-180	3368	51	100

**Single Unit Footcandles**

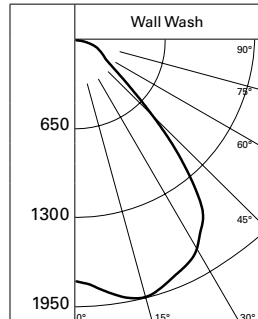
**Multiple Unit Footcandles**

DD	3' from wall (distance from fixture along wall)				3' from wall (spacing between fixtures)				4' from wall (spacing between fixtures)							
	1'	2'	3'	4'	3'	4'	5'	4'	5'	4'	5'					
1	29	14	5	2	34	18	34	31	11	31	15	7	15	14	5	14
2	40	25	10	4	50	34	50	45	21	45	24	15	24	23	10	23
3	75	44	15	6	88	57	88	81	33	81	32	22	32	29	15	29
4	77	52	20	7	94	72	94	85	42	85	50	32	50	47	21	47
5	53	42	21	9	74	69	74	62	45	62	55	40	55	51	26	51
6	36	31	19	9	57	58	57	46	41	46	47	40	47	42	29	42
7	24	22	16	9	46	47	46	35	35	35	39	37	39	34	28	34
8	18	16	12	8	37	37	37	28	39	28	32	32	32	27	25	27
9	13	12	10	7	30	30	30	23	24	23	27	28	2	22	22	22
10	10	9	8	6	25	25	25	19	20	19	23	23	23	19	19	19

**Photometric Results**

Efficiency = 51.7%
Test No. P11174 Platform = P406TAT Element = E4LWWH Lumens = 3300 Lamp = CMH39/T6/G12


**Candlepower Distribution**



**Candelas**

CD Wall	Vertical Angle
0	90
19	85
117	75
196	65
297	55
822	45
1628	35
1859	25
1962	15
1837	5
1779	0

**Zonal Lumens Summary**

Zone	Lumens	% Lamp	% Luminaire
0- 30	978	29.6	57.4
0- 40	1312	39.7	76.9
0- 60	1615	48.9	94.7
0- 90	1705	51.7	100
90-180	0	0	0
0-180	1705	51.7	100

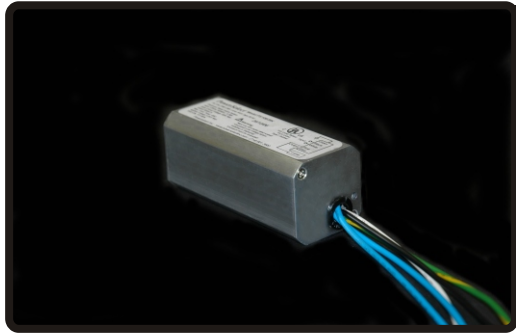
**Single Unit Footcandles**

**Multiple Unit Footcandles**

DD	2' from wall (distance from fixture along wall)				2' from wall (spacing between fixtures)				3' from wall (spacing between fixtures)							
	1'	2'	3'	4'	2'	3'	4'	3'	4'	3'	4'					
1	37	13	4	1	45	29	45	40	14	40	16	9	16	15	5	15
2	73	27	6	2	87	60	87	78	25	78	22	16	22	20	10	20
3	71	37	8	3	90	81	90	78	37	78	39	27	39	36	15	36
4	41	29	10	3	65	65	65	49	39	49	45	36	45	41	20	41
5	24	19	10	4	47	48	47	33	32	33	36	34	36	31	23	31
6	15	13	8	4	35	35	35	24	24	24	29	29	29	23	21	23
7	10	9	6	3	26	27	26	18	18	18	23	24	23	18	18	18
8	7	6	5	3	20	20	20	14	14	14	19	19	19	14	15	14
9	5	5	4	3	16	16	16	11	11	11	16	16	16	12	12	12
10	4	4	3	2	13	13	13	9	9	9	13	13	13	10	10	10

# 120Vac & 277V 20W/39W Mini Stick Electronic Metal Halide Ballast

## Model PS10B20K & PS10B39K



### INPUT SPECIFICATIONS

● Vac	95-135 Vac
● PS10B20K Amp's	0.20A @ 20W
● PS10B39K Amp's	0.35A @ 39W
● Frequency	50/60Hz
● THD	<10% (7% Typ.)
● Power Factor	>98%

● Vac	208-277 Vac
● PS10D20K Amp's	0.09A @ 20W
● PS10D39K Amp's	0.15A @ 39W
● Frequency	50/60Hz
● THD	<15% (11% Typ.)
● Power Factor	>96%

## Model PS10D20K & PS10D39K



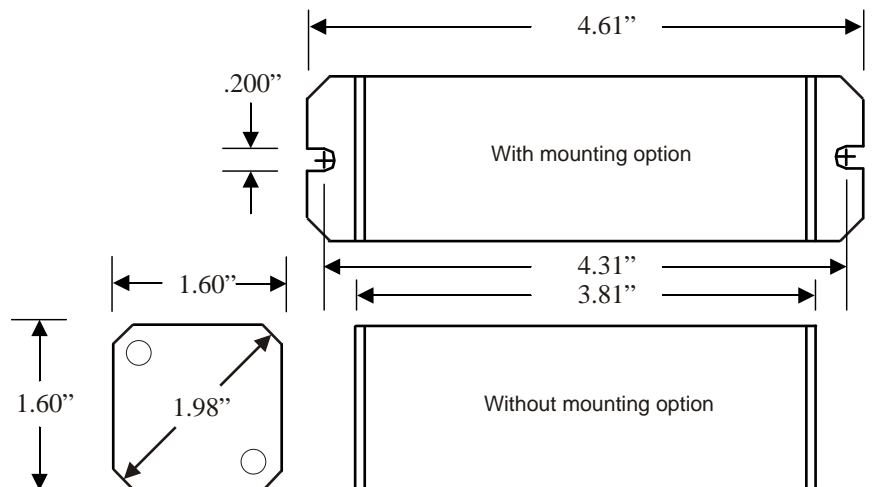
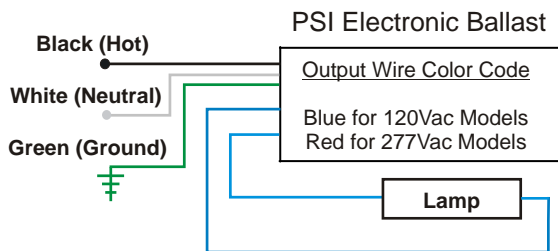
### OUTPUT SPECIFICATIONS

● PS10B20K, PS10D20K Lamp Power	20W +/- 2%
● PS10B39K, PS10D39K Lamp Power	39W +/- 2%
● Lamp Drive Frequency	150Hz +/-10%
● Lamp Current Crest Factor	<1.2
● Open Circuit Voltage	>300V Square Wave
● Ignitor Voltage @ Ballast Leads	>3.8KV
● Ignition Failure Timeout	30 Min. Shutdown
● Maximum distance from Ballast	2.5M or (8.2 feet) Max.
● Compatible 39W ANSI Lamp Types	M130
● Compatible 20W ANSI Lamp Types	M156

### MECHANICAL / ENVIRONMENTAL

- Enclosure Overall Dimensions 'both Models'
- Unit Weight
- Operating Temperature
- EMI / RFI Compliance
- Sound Rating
- UL / CUL Listed
- Warranty up to 5 years.

3.81" L x 1.60" W x 1.60" H 'Also available with Feet'  
 16.8oz.  
 Min. Temp -30°C - Max. Temp 90°C  
 FCC Part 18  
 Rated 'A'  
 File #E173598



**PowerSelect Inc.**

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 E-mail - sales@powerselectinc.com

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Commercial Products &amp; Solutions

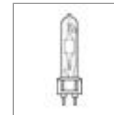
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[Products](#) > 29703**29703 – CMH20T/U/830/G12**

GE ConstantColor® PulseArc® CMH® Ceramic Metal Halide T4.5

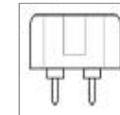

 a product of  
**ecomagination**
**GENERAL CHARACTERISTICS**

Lamp type	High Intensity Discharge - Ceramic Metal Halide
Bulb	T4.5
Base	Bi-Pin (G12)
Wattage	20
Rated Life	12000 hrs
Bulb Material	Quartz
Lamp Enclosure Type (LET)	Enclosed fixtures only
LEED-EB MR Credit	167 picograms Hg per mean lumen hour
Additional Info	UV control

Bulb



Base

[View Larger](#)**PHOTOMETRIC CHARACTERISTICS**

Initial Lumens	1600
Mean Lumens	1200
Nominal Initial Lumens per Watt	80
Color Temperature	3000 K
Color Rendering Index (CRI)	81

**ADDITIONAL RESOURCES**[Catalogs](#)[Testimonials](#)[Sell Sheets](#)

- [ConstantColor® CMH® Single-Ended G12 Lamps](#)
- [ConstantColor® CMH® Single-Ended G12 Lamps - OEM Data Sheet](#)

[MSDS \(Material Safety Data Sheets\)](#)[Disposal Policies & Recycling Information](#)**ELECTRICAL CHARACTERISTICS**

Burn Position	Universal burning position
Warm Up Time to 90% (MAX)	2 min/3 min
Hot Restart Time to 90% (MIN)	10 min
Hot Restart Time to 90% (MAX)	15 min

**DIMENSIONS**

Maximum Overall Length (MOL)	3.5600 in (90.4 mm)
Light Center Length (LCL)	2.180 in (55.3 mm)

**PRODUCT INFORMATION**

Product Code	29703
Description	CMH20T/U/830/G12

ANSI Code	M156
Standard Package	Case
Standard Package GTIN	10043168297032
Standard Package Quantity	12
Sales Unit	Unit
No Of Items Per Sales Unit	1
No Of Items Per Standard Package	12
UPC	043168297035

**COMPATIBLE GE BALLASTS**

Product Code	Description	# of Bulbs	Power Factor	Ballast Factor
<a href="#">87490</a>	GEMH20-MLF-120	1	56.0	1.0

**⚠ CAUTIONS & WARNINGS**

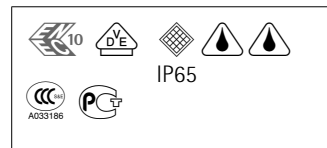
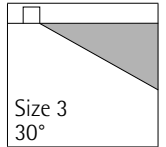
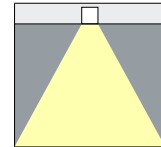
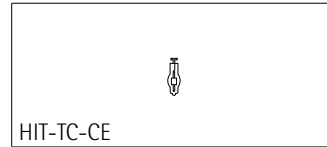
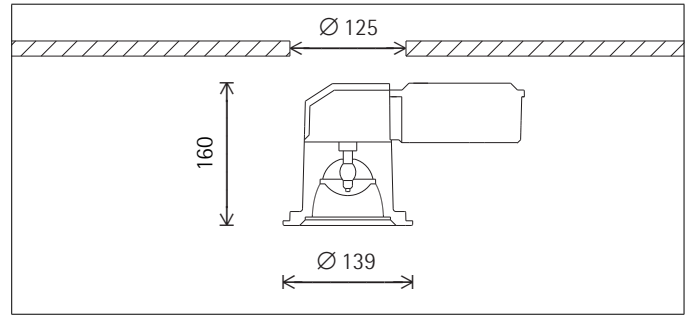
**R-** WARNING: This lamp can cause serious skin burn and eye inflammation from shortwave ultraviolet radiation if outer envelope of the lamp is broken or punctured, and the arc tube continues to operate. Do not use where people will remain for more than a few minutes unless adequate shielding or other safety precautions are used. Certain types of lamps that will automatically extinguish when the outer envelope is broken or punctured are commercially available. Visit the FDA website for more information:  
<http://www.fda.gov/cdrh/radhealth/products/urburns.html>

[See list of cautions & warnings.](#)

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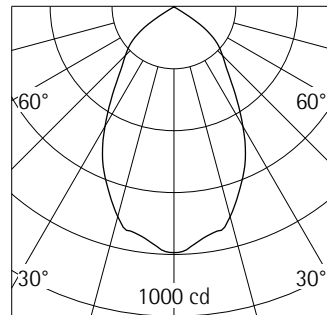
Copyright General Electric Company 1997-2009



**81040.000** Reflector silver  
 HIT-TC-CE 20W PGJ5 1650lm  
 ECG

**Product description**

Housing: cast aluminium, silver powder-coated. Mounting with 2-point support and screw fixing, for ceiling thicknesses of 1-30mm. Side-mounted control gear: plastic, black. Electronic control gear. 2 cable entries. Through-wiring possible. 5-pole terminal block. Darklight reflector: aluminium, bright anodised. Cut-off angle 30°. Diffuser as lamp cover: glass, frosted. Screw-fastened cover ring with safety glass: corrosion-resistant cast aluminium, No-Rinse surface treatment. Silver double powder-coated. To be removed together with Darklight reflector for lamp replacement. Protection mode IP65: dust-proof and water jet-proof. Weight 1.20kg



HIT-TC-CE 20W PGJ5 1650lm

h(m)	E(lx)	D(m)
		65°
1	794	1.27
2	199	2.55
3	88	3.82
4	50	5.10
5	32	6.37

## Planning data

Cleaning (a)	1				2				3			
	P	C	N	D	P	C	N	D	P	C	N	D
Ambient conditions												
LMF	0.96	0.94	0.90	0.86	0.93	0.91	0.86	0.81	0.92	0.90	0.84	0.79
RSMF	0.96	0.92	0.87	0.81	0.96	0.92	0.87	0.81	0.96	0.92	0.87	0.81

Hours of operation (h)	1000	2000	4000	6000	8000	9000
LLMF	0.94	0.86	0.82	0.75	0.69	0.66
LSF	1	1	1	1	1	1

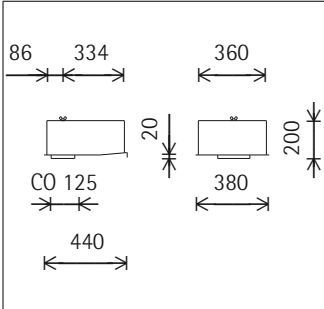
- MF LMFxRSMFxLLMFxLSF
- MF Maintainance Factor
- LMF Luminaire Maintenance Factor
- RSMF Room Surface Maintenance Factor
- LLMF Lamp Lumens Maintenance Factor
- LSF Lamp Survival Factor
- P Room pure
- C Room clean
- N Room normal
- D Room dirty



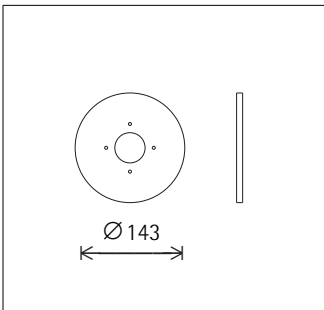
## Accessories



**83581.000**  
 Concrete housing  
 Metal, powder-coated.  
 Recommended 0-8mm aggregate  
 for the concrete.  
 Weight 5.20kg

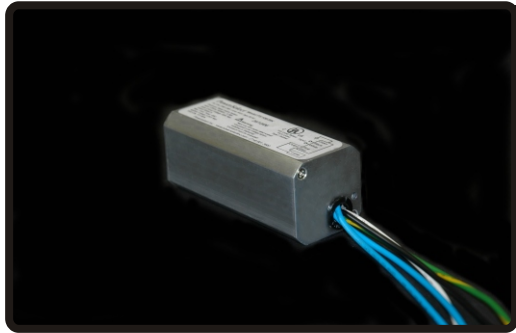


**83811.000**  
 Rosette  
 Plastic.  
 For flush-mounting of downlights  
 in concrete housings in exposed  
 concrete ceilings.  
 Weight 0.08kg  
 Only in conjunction with:  
 83581.000



# 120Vac & 277V 20W/39W Mini Stick Electronic Metal Halide Ballast

## Model PS10B20K & PS10B39K

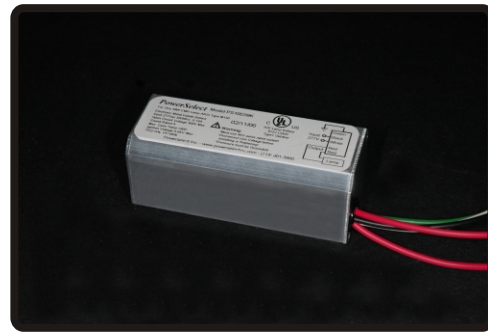


### INPUT SPECIFICATIONS

● Vac	95-135 Vac
● PS10B20K Amp's	0.20A @ 20W
● PS10B39K Amp's	0.35A @ 39W
● Frequency	50/60Hz
● THD	<10% (7% Typ.)
● Power Factor	>98%

● Vac	208-277 Vac
● PS10D20K Amp's	0.09A @ 20W
● PS10D39K Amp's	0.15A @ 39W
● Frequency	50/60Hz
● THD	<15% (11% Typ.)
● Power Factor	>96%

## Model PS10D20K & PS10D39K



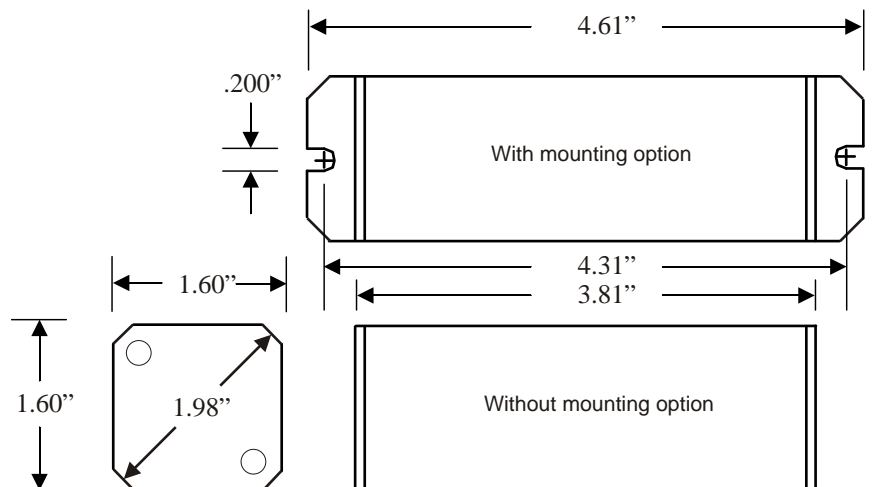
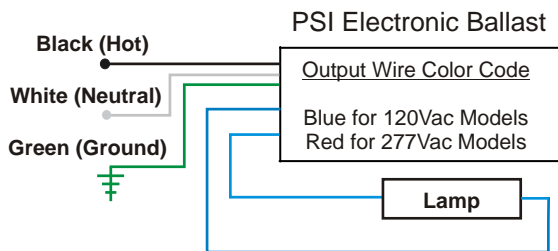
### OUTPUT SPECIFICATIONS

● PS10B20K, PS10D20K Lamp Power	20W +/- 2%
● PS10B39K, PS10D39K Lamp Power	39W +/- 2%
● Lamp Drive Frequency	150Hz +/-10%
● Lamp Current Crest Factor	<1.2
● Open Circuit Voltage	>300V Square Wave
● Ignitor Voltage @ Ballast Leads	>3.8KV
● Ignition Failure Timeout	30 Min. Shutdown
● Maximum distance from Ballast	2.5M or (8.2 feet) Max.
● Compatible 39W ANSI Lamp Types	M130
● Compatible 20W ANSI Lamp Types	M156

### MECHANICAL / ENVIRONMENTAL

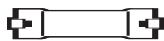
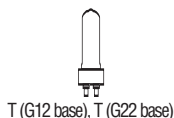
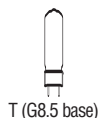
- Enclosure Overall Dimensions 'both Models'
- Unit Weight
- Operating Temperature
- EMI / RFI Compliance
- Sound Rating
- UL / CUL Listed
- Warranty up to 5 years.

3.81" L x 1.60" W x 1.60" H 'Also available with Feet'  
 16.8oz.  
 Min. Temp -30°C - Max. Temp 90°C  
 FCC Part 18  
 Rated 'A'  
 File #E173598



**PowerSelect Inc.**

Tel: (714) 901-3900 Fax: (714) 901-0026  
 E-mail - sales@powerselectinc.com



## POWERBALL® CERAMIC METALARC® TUBULAR SINGLE-ENDED High CRI, Pulse Start, UV Stop – Enclosed Fixtures Only

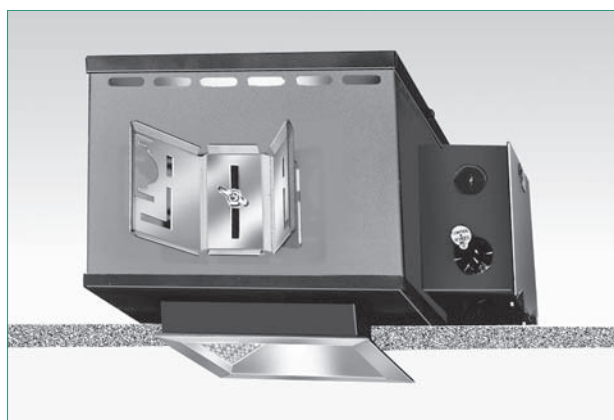
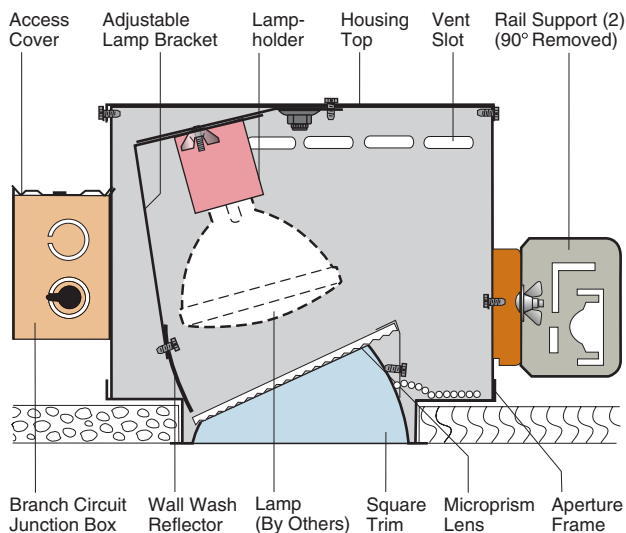
Watts	Bulb	Base	Product Number	Ordering Abbreviation	ANSI Code	Pkg Qty	Lamp Finish	Operating Position	Fix Req	Avg Rated Life (hrs)	Approx Lumens (initial)	Lumens (mean)	CRI	CCT (K)	Symbols & Footnotes
20	T4.5	G8.5	64882	MC20TC/U/G8.5/830PB	M156/E	12	Clear	Universal	E	12000	1700	1275	83	3000	1,4,18,24,25,30,48
39	T4.5	G8.5	64791	MC39TC/U/G8.5/830PB	M130/E	12	Clear	Universal	E	12000	3400	2720	82	3000	1,4,18,24,25,30,48
	T6	G12	64363	MC39T6/U/G12/830PB	M130/E	12	Clear	Universal	E	12000	3400	2720	82	3000	1,4,18,24,25,30,48
			64325	MC39T6/U/G12/940PB	M130/E	12	Clear	Universal	E	12000	3300	2640	90	4200	1,4,18,24,25,26,30,48
70	T4.5	G8.5	64825	MC70TC/U/G8.5/930PB	M139/E, M98/E	12	Clear	Universal	E	12000	6300	5040	95	3000	1,4,18,24,25,26,30,48
	T6	G12	64361	MC70T6/U/G12/830PB	M139/E, M98/E	12	Clear	Universal	E	12000	7000	5600	87	3000	1,4,18,24,25,26,30,48
			64200	MC70T6/U/G12/930PB	M139/E, M98/E	12	Clear	Universal	E	12000	6400	5120	95	3000	1,4,18,24,25,26,30,48
			64338	MC70T6/U/G12/940PB	M139/E, M98/E	12	Clear	Universal	E	12000	6700	5360	93	4200	1,4,18,24,25,26,30,48
150	T7.5	G12	64359	MC150T7.5/U/G12/830	M102/E, M142/E	12	Clear	Universal	E	12000	15500	12400	89	3000	1,4,18,24,30,31,48
			64337	MC150T7.5/U/G12/940PB	M102/E, M142/E	12	Clear	Universal	E	12000	14500	11600	95	4200	1,4,18,24,30,31,48
250	T9	G22	64167	MC250T9/U/G22/830PB	M80/E	10	Clear	Universal	E	12000	24500	19600	86	3000	1,4,18,24,30,31,48

## POWERBALL® CERAMIC METALARC® TUBULAR DOUBLE-ENDED

Watts	Bulb	Base	Product Number	Ordering Abbreviation	ANSI Code	Pkg Qty	Lamp Finish	Operating Position	Fix Req	Avg Rated Life (hrs)	Approx Lumens (initial)	Lumens (mean)	CRI	CCT (K)	Symbols & Footnotes
70	T6	RX7s RSC	64793	MC70T6/DE/830PB	M139/E, M85/E, M98/E	12	Clear	HOR ± 45°	E	12000	6900	5520	88	3000	1,4,18,25,26,30,35,48
150	T7.5	RX7s RSC	64794	MC150T7.5/DE/830PB	M102/E, M142/E, M81/E	12	Clear	HOR ± 45°	E	12000	14800	11840	91	3000	1,4,18,30,37,48

## POWERBALL® CERAMIC METALARC® PAR High CRI, Pulse Start, UV Stop – Open or Enclosed Fixtures

Watts	Bulb	Base	Product Number	Ordering Abbreviation	ANSI Code	Pkg Qty	Beam Type	Beam Angle	Operating Position	Fix Req	Avg Rated Life (hrs)	MBCP	Approx Lumens (initial)	CRI	CCT (K)	Symbols & Footnotes
20	PAR30LN	E26 Med	64879	MCP20PAR30LN/U/830/SP/ECOPB	M156/O	6	SP	10°	Universal	O	12000	24000	1200	82	3100	1,4,7,17,24,30,48
			64878	MCP20PAR30LN/U/830/FL/ECOPB	M156/O	6	FL	30°	Universal	O	12000	4000	1200	82	3100	1,4,7,17,24,30,48
39	PAR20	E26 Med	64824	MCP39PAR20/U/830/SPPB	M130/O	12	SP	10°	Universal	O	12000	20000	2000	87	3000	1,4,17,24,25,30,48
			64826	MCP39PAR20/U/830/FLPB	M130/O	12	FL	30°	Universal	O	12000	5000	2000	87	3000	1,4,17,24,25,30,48
	PAR30LN	E26 Med	64880	MCP39PAR30LN/U/830/SP/ECOPB	M130/O	6	SP	10°	Universal	O	12000	39600	2300	85	3000	1,4,7,17,24,25,30,48
			64881	MCP39PAR30LN/U/830/FL/ECOPB	M130/O	6	FL	30°	Universal	O	12000	8000	2300	85	3000	1,4,7,17,24,25,30,48



# H8451

**Wall Washer**  
**One PAR-16, PAR-20 or PAR-30 Lamp**  
**4 1/2" Square Parabolic Trim**

### Optics and Applications

The kicker reflector gathers and redirects stray light through a microprism spread lens to produce wide lateral spread, light close to the ceiling and a uniformly illuminated wall. The pattern is devoid of hot spots or striations. Suitable for damp locations. Use to wash walls or accentuate objects of special interest.

### Design Features

The housing protects all optical components. It is vented for air flow cooling. The trim is stabilized to prevent racking and is held to the ceiling by constant pressure springs. After installation, the trim and optical assembly may be rotated 360° in 90° increments if orientation to the wall is incorrect. Maximum ceiling thickness 7/8". Top or bottom service.

### Finish

Housing and structural parts are painted matte black to suppress stray light leaks. Standard trim is anodized Softglow® clear. Special finishes, textures and colors available, see below under Accessories.

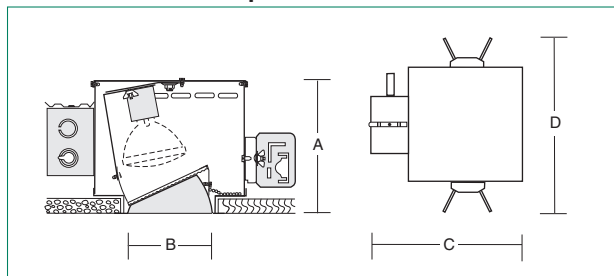
### Trim Textures

Textured trims create a subtle new aperture appearance. Select among different embossed patterns to match the ambiance of the space being illuminated. Refer to Squares brochure for descriptive photos.

### General

Fixtures are pre-wired, thermally protected, UL and C-UL listed for eight wire 75°C branch circuit wiring. Union made IBEW. Luminaire Efficiency Ratings (LER) do not apply to wall washers.

### Dimensions and Lamps



Number	A Depth	B Aperture	C Width	D Length	Lamps
H8451	7 1/4" 184mm	4 1/2" sq. 114mm	11" 280mm	14" 356mm	40-75W PAR-16 35-50W PAR-20 50-75W PAR-30*

Factory sets focal position for PAR-20. Converts on the job as required.  
 \*Short neck version only.

### Accessories

- R2 26" support rails. WT White trim flange.
- R5 52" support rails. WHT White complete trim.
- SB Softglow black. BP Ball Peen texture.
- SG Softglow gold. CG Corrugated texture.
- SH Softglow mocha. DS Distressed texture.
- SP Softglow graphite. WV Woven texture.
- ST Softglow titanium. BR Bright trim finish.
- SW Softglow wheat. LL Linear spread lens.
- SY Softglow pewter. LP Large prism lens.
- SZ Softglow bronze. FR Frosting on lens.

WRL Wattage restriction label, specify wattage.  
 See Squares brochure for more accessories data.

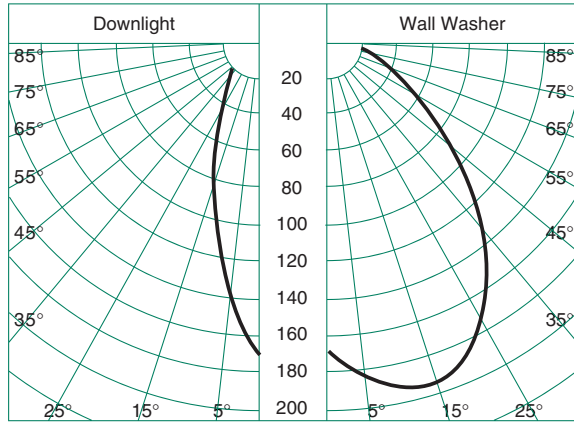
### Matching Square Units

- Directional downlights [Pages H1, H2, H24](#)
- Straight downlights [Pages H3, H4, H21, H25](#)

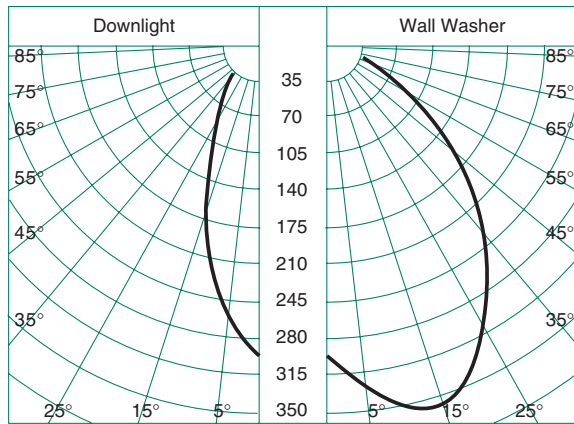
\* Click for link to pages in blue.

# H33 H8451

## Candlepower Distribution Curves



H8451 50W PAR-20 NFL



H8451 75W PAR-16 NFL

## Brightness

Number	Lamps	85°	75°	65°	55°	45°
H8451	50W PAR-20 NFL	17	59	135	2248	7465
	75W PAR-16 NFL	26	93	213	3505	11780

Data in footlamberts. Photometer readings. Maximum Brightness Method. See note 7.

## Multiple Units Footcandles

From Ceiling	2' from wall		3' from wall				4' from wall					
	2' Centers		3' Centers		3' Centers		4' Centers		4' Centers		6' Centers	
	C/L	Mid	C/L	Mid	C/L	Mid	C/L	Mid	C/L	Mid	C/L	Mid
1'	9	7	8	4	3	2	3	1	1	1	1	.2
2'	11	12	9	7	4	4	4	2	2	2	2	1
3'	10	10	7	7	5	5	4	3	3	3	2	1
4'	8	8	5	5	5	5	4	4	3	3	2	2
5'	6	6	4	4	4	4	3	3	3	3	2	2
6'	4	5	3	3	3	4	3	3	3	3	2	2
7'	3	3	2	2	3	3	2	2	2	2	2	2
8'	3	3	2	2	2	2	2	2	2	2	1	1
9'	2	2	1	1	2	2	2	2	2	2	1	1
10'	2	2	1	1	2	2	1	1	1	2	1	1

H8451 50W PAR-20 NFL

From Ceiling	2' from wall		3' from wall				4' from wall					
	2' Centers		3' Centers		3' Centers		4' Centers		4' Centers		6' Centers	
	C/L	Mid	C/L	Mid	C/L	Mid	C/L	Mid	C/L	Mid	C/L	Mid
1'	16	12	14	7	5	4	5	2	2	1	2	.3
2'	20	21	16	12	8	7	7	4	4	3	3	1
3'	18	19	13	12	9	9	8	6	5	5	4	2
4'	14	14	9	10	9	9	7	6	5	5	4	3
5'	11	11	7	7	8	8	6	6	5	5	4	3
6'	8	8	5	5	6	6	5	5	5	5	3	3
7'	6	6	4	4	5	5	4	4	4	4	3	3
8'	5	5	3	3	4	4	3	3	3	3	2	2
9'	4	4	3	3	4	4	3	3	3	3	2	2
10'	3	3	2	2	3	3	2	2	3	3	2	2

H8451 75W PAR-16 NFL

## Notes

- All data calculated with Softglow® clear trims and a microprism spread lens.
- If colored trims are required, only the lens trim will be tinted. The kicker reflector is always clear Alzak for maximum output and true color rendition. Multipliers should be used to correct brightness and downlight data only. Multiple units footcandles are correct as reported above.
- Colored trim multipliers: Gold x .90, Wheat x .85, Mocha x .80, Pewter x .80, Graphite x .75, Titanium x .75, Bronze x .70, Black x .70.
- Data are cosine corrected to the plane of the wall. Uncorrected data are much higher and depend upon the angle of incidence to the wall which varies with the mounting distance from the wall.
- Kurt Versen wall washers minimize hard shadow lines at the ceiling. Intensity increases gradually to just above eye level. The illuminated field is uniform and devoid of hot spots, striations and spikes.
- Above data measure output of the wall washers only. No contribution from adjacent downlights or ceiling, floor or wall reflectances is included. Total illumination on the wall increases with the contribution from other sources.
- Brightness data from the Average Luminance Method are inaccurate for downlights. They are theoretical calculations for large surfaces such as troffer lenses. We recommend the stricter standard of Maximum Brightness Method point data from direct photometer readings. They approximate what the human eye perceives when evaluating glare. For more information refer to Z section brochure Z1.



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GE Edison™ PAR20



- Edison™ halogen bulbs provide a brighter, crisper light that makes your home look its best
- That's why professionals choose Edison for exceptional results and longer bulb life.
- Showcase the beauty of your home with the highest quality of light.



Energy Savings

**GENERAL CHARACTERISTICS**

Lamp type	Halogen - PAR
Bulb	PAR20
Base	Medium NP
Filament	CC-8
Wattage	50
Voltage	120
Rated Life	3000 hrs
Primary Application	Indoor Floodlight

**PHOTOMETRIC CHARACTERISTICS**

Initial Lumens	570
Center Beam Candlepower (CBCP)	1500
Color Temperature	2800 K
Nominal Initial Lumens per Watt	11

**DIMENSIONS**

Maximum Overall Length (MOL)	3 1/8
Bulb Diameter (DIA)	2 1/2

**PRODUCT INFORMATION**

Product Code	14928
Description	50PAR20H/FL25
Standard Package	Case
Standard Package GTIN	00043168149280
Standard Package Quantity	6
Sales Unit	Unit
No Of Items Per Sales Unit	1
No Of Items Per Standard Package	6
UPC	043168900980

**⚠ CAUTIONS & WARNINGS**[See list of cautions & warnings.](#)

Bulb



Package

[View Larger](#)**ADDITIONAL RESOURCES**[Catalogs](#)[Testimonials](#)[MSDS \(Material Safety Data Sheets\)](#)[Disposal Policies & Recycling Information](#)

\*Twenty month life based on rated life at 4 hours/day.

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# VIVO

## Metal Halide (1) G8.5 Base, 70W max.

## Track Accent Light

online Find it Fast **298**



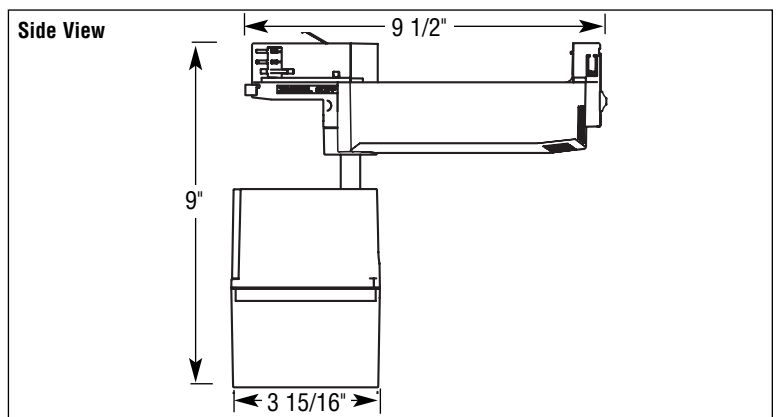
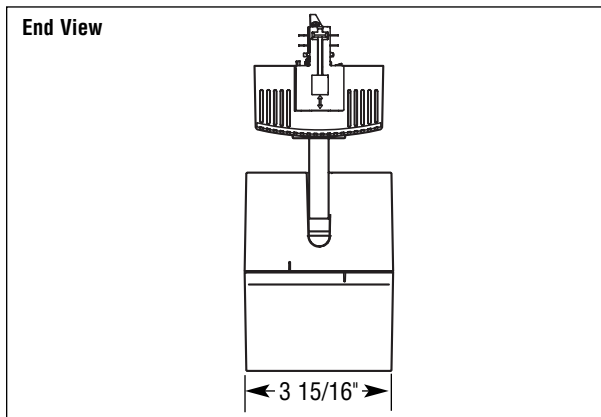
**Applications:** VIVO offers a unique combination of style and performance quality for retail stores, showrooms, art galleries, and commercial spaces. Three different sized models, designed for innovative light sources and a variety of accessories, make VIVO a highly flexible and adaptable track system. The high-efficacy ceramic metal halide lamp source and the effective distribution created by the optical system make VIVO an excellent way to meet strict energy codes. The photometric performance of the VIVO-M ensures highly attractive, smooth and striation-free beam patterns for accentuated presentations.

**ZOOM!** 2-week delivery on items shown in gray

Type: \_\_\_\_\_  
Project: \_\_\_\_\_

ORDERING NOTE: Specify lamp, reflector, finish and accessories.

▼Fixture	▼Lamp	▼Reflector	▼Finish	▼Accessories
<b>VIVOM</b>				
<b>VIVOM</b> VIVO Ceramic Metal Halide Track Fixture, Medium Housing, 3 Circuit Track Adapter	<b>20T45G85</b> T4.5, 20W, G8.5 Base <b>39T45G85</b> T4.5, 39W, G8.5 Base <b>70T45G85</b> T4.5, 70W, G8.5 Base	<b>S</b> Spot - 15° <b>F</b> Flood - 25° <b>WF</b> Wide Flood - 40°	<b>SRM</b> Silver Micro <b>WHM</b> White Micro	<b>084-IR/UVA-GL</b> IR/UVA Filter <b>084-UVA-GL</b> UVA Filter <b>084-SDIF-GL</b> Diffuser (Solite) <b>084-SL-GL</b> Spread Lens <b>084-RD-DGL</b> Red Dichroic <b>084-BL-DGL</b> Blue Dichroic <b>084-GR-DGL</b> Green Dichroic <b>084-YL-DGL</b> Yellow Dichroic <b>084-HXLVR</b> Hexcell Louver <b>084-4D-BD</b> Barn Doors



IBEW Union Made

**1. Adapter / Trackbox** - Die-cast aluminum trackbox with integral Zumtobel 3-circuit universal adapter. Silver-plated contact ensures rigid electrical and mechanical connection. Includes integrated switch, which allows for on/off switching and changing of circuits giving project flexibility.

**2. Lamp Housing** - Track head consists of 2-piece die-cast aluminum housing finished in microstructure paint, white or silver. Front cylinder of housing accommodates reflector and is fixed to rear housing via bayonet joint (twist and lock mechanism) for extremely easy relamping and changing of accessories.

**3. Swivel and Vertical Adjustment** - Toolless locking of track fixture is achieved via integral self-decelerating ball-and-socket joint, adjustable by means of thermally isolated clip using the Squeeze, Move and Retain (SMART) system. Lampholder has maximum rotation of 360° and vertical adjustment of 90°.

**4. Ballast** - Electronic 20W-ANSI M-175, 39W-ANSI M-130E, or 70W-ANSI M-139E 120V thermally protected metal halide safety ballast integral to trackbox.

**5. Lamp** - (1) T4.5 metal halide lamp 70W maximum, for G8.5 base socket. Lamp supplied by others.

**6. Reflector** - Photometrically-optimized faceted aluminum alzak reflector is available in spot, flood and wide flood beam distributions.

**7. Internal Accessory holder** - Front cylinder of housing internally accommodates up to three accessories including a protective clear glass lens and provides a visually clean appearance.

**8. Weight** - 3.0 lbs.

**NOTE: All VIVO track fixtures are only available with three circuit track adapter. Not suitable for point outlets.**

**For use on Zumtobel 3-circuit track, and U.L. listed for use on Nordic Aluminum 3-circuit track also.**

In a continuing effort to offer the best product possible we reserve the right to change, without notice, specifications or materials. Technical specification sheets that appear on [www.zumtobel.us](http://www.zumtobel.us) are the most recent version and supersede all other versions that exist in any other printed or electronic form.

# Photometric Data

## VIVOM-39T45G85-S (1) 39W T4.5

TRACK FIXTURE, 1x39W G8.5 BASE MH, SPOT

PRORATED FROM ST5855-3072

Total Luminaire Efficiency 55%

INITIAL LAMP LUMENS = 3300

INPUT WATTS = 43

## VIVOM-39T45G85-F (1) 39W T4.5

TRACK FIXTURE, 1x39W G8.5 BASE MH, FLOOD

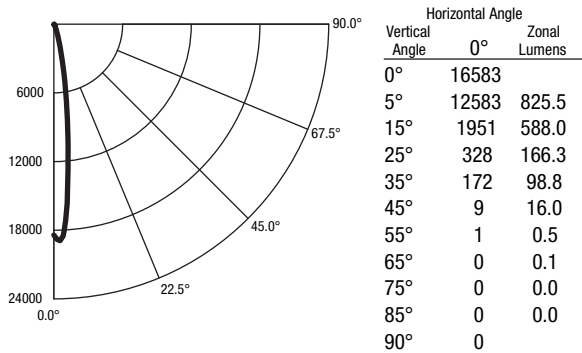
PRORATED FROM ST5854-3071

Total Luminaire Efficiency 54%

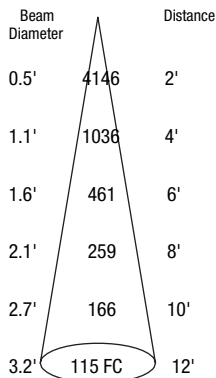
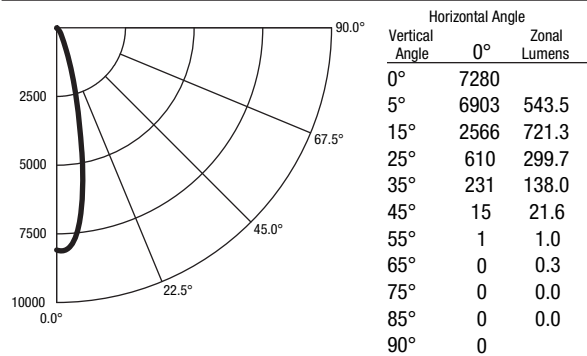
INITIAL LAMP LUMENS = 3300

INPUT WATTS = 43

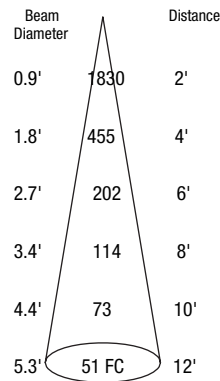
### Candela Distribution



### Candela Distribution



Beam center footcandles shown in "cone of light" are initial, LLF = 1.0



Beam center footcandles shown in "cone of light" are initial, LLF = 1.0

# Photometric Data

## VIVOM-39T45G85-WF (1) 39W T4.5

TRACK FIXTURE, 1X39W G8.5 BASE MH, FLOOD

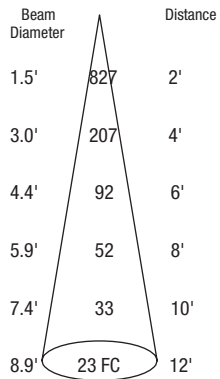
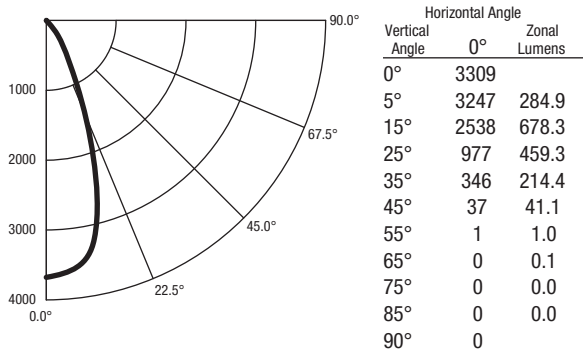
PRORATED FROM ST5856-3070

Total Luminaire Efficiency 52%

INITIAL LAMP LUMENS = 3300

INPUT WATTS = 43

### Candela Distribution



Beam center footcandles shown in "cone of light" are initial, LLF = 1.0

**PHILIPS**

# MasterColor CDM-T 35W/830 T6 1CT

Keyword search

[+ Advanced search](#)

## MasterColor CDM-T 35W/830 T6 1CT

### Lamp Description

Range of single-ended T6 high-efficiency ceramic metal halide lamps with a stable color over lifetime and a crisp, sparkling light.

- [Download product data sheet](#)
- [Print page](#)

Product specs:	+ Images:	+ Family info:
<a href="#">MSDS sheets</a>		
<b>PRODUCT DATA</b>		
Product Number	223289	
Full product name	MasterColor CDM-T 35W/830 T6 1CT	
Ordering Code	223289	
Pack type	1 Lamp in a Folding Carton	
Pieces per Sku	1	
Skus/Case	12	
Pack UPC	046677223281	
EAN2US		
Case Bar Code	50046677223286	
Successor Product number		
<b>General Characteristics</b>		
Base	G12	
Bulb	T6 [Diameter: 6/8 inch /19mm]	
Bulb Finish	Clear	
Operating Position	Universal [Any or Universal (U)]	
Packing Type	1CT [1 Lamp in a Folding Carton]	
Packing Configuration	12	
Ordering Code	CDM35/T6/830	

Pack UPC	046677223281
Case Bar Code	50046677223286
ANSI Code HID	M130/E
<b>Electrical Characteristics</b>	
System Power EL	44 W
Watts	35W
Lamp Wattage EL	38 W
Lamp Voltage	88 V
Dimmable	No
<b>Light Technical Characteristics</b>	
Color Code	830 [CCT of 3000K]
Color Rendering Index	81 Ra8
Color Designation	Warm White
Color Description	830 Warm White
Color Temperature	3095 K
Initial Lumens	3300 Lm
Initial Lumens	3150 Lm
Design Mean Lumens	- Lm
<b>Product Dimensions</b>	
Overall Length C	103 mm
Diameter D	20 mm
Light Center Length L	2.21875 in
Max Overall Length (MOL) - C	3.9375 in
Diameter D	0.75 in
<b>Logistic and Packing Data</b>	
Product Number	223289

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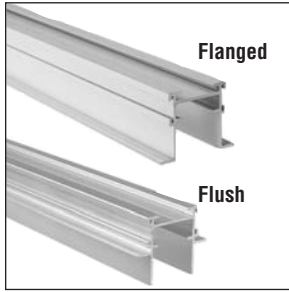
# Track

## Recessed Housings

# 4'/8'/12'

online  
Find it Fast

69

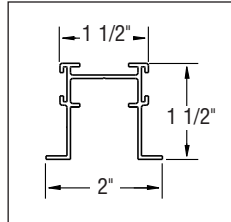


**Applications:** Flanged or flush, recessed housings are available for 1 circuit and 3 circuit straight track. Three standard finishes include white, black and satin aluminum to match straight track colors. For custom color, supply approved color chip.

**Type:** \_\_\_\_\_

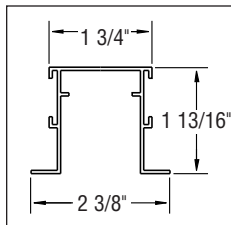
**Project:** \_\_\_\_\_

### Flanged Profile - 1-Circuit



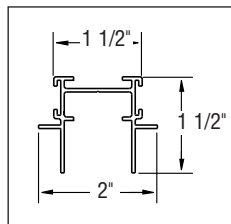
4'	8'	12'
58441WH	58481WH	58421WH
58441BK	58481BK	58421BK
58441SA	58481SA	58421SA
58441SP	58481SP	58421SP

### Flanged Profile - 3-Circuit



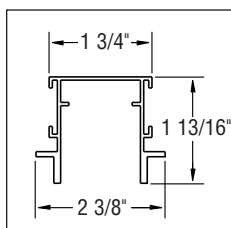
4'	8'	12'
58443WH	58483WH	58423WH
58443BK	58483BK	58423BK
58443SA	58483SA	58423SA
58443SP	58483SP	58423SP

### Flush Profile - 1-Circuit



4'	8'	12'
58641WH	58681WH	58621WH
58641BK	58681BK	58621BK
58641SA	58681SA	58621SA
58641SP	58681SP	58621SP

### Flush Profile - 3-Circuit



4'	8'	12'
58643WH	58683WH	58623WH
58643BK	58683BK	58623BK
58643SA	58683SA	58623SA
58643SP	58683SP	58623SP



IBEW Union Made

- WH** – White
- BK** – Black
- SA** – Satin Aluminum (to match titan track fixtures)
- SP** – Special color (approved color chip required)

Note: Recessed housings are field cuttable.

For electrical load, see National Electrical Code, Article 410, Paragraph 102.

In a continuing effort to offer the best product possible we reserve the right to change, without notice, specifications or materials that in our opinion will not alter the function of the product. Technical specification sheets that appear on [www.zumtobel.us](http://www.zumtobel.us) are the most recent version and supersede all other versions that exist in any other printed or electronic form.

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[www.zumtobel.us](http://www.zumtobel.us)  
TEL (845) 691-6262 • (800) 932-0633 • FAX (845) 691-6289  
1/30/08

TC-3

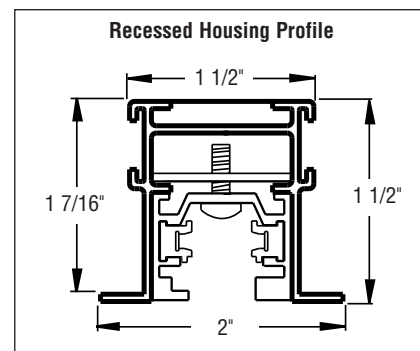
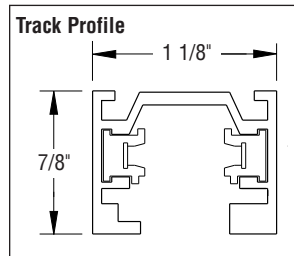


## 1-Circuit Track

Size: 7/8" x 1 1/8"  
extruded aluminum

Amps: 1 x 20 amps

Rating: 120 volt

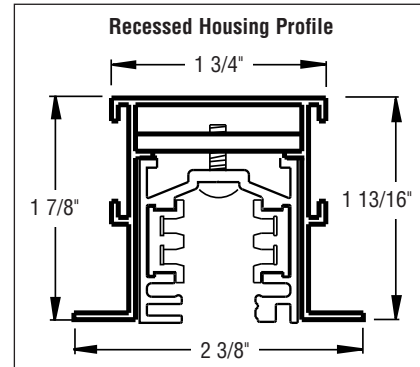
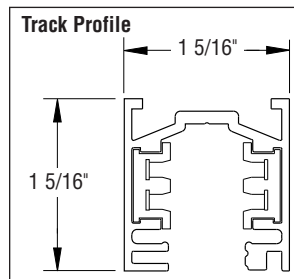


## 3-Circuit Track

Size: 1 5/16" x 1 5/16"  
extruded aluminum

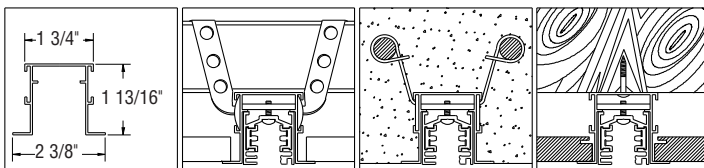
Amps: 3 x 20 amps maximum  
(3Ø only)

Rating: 120/240 volt

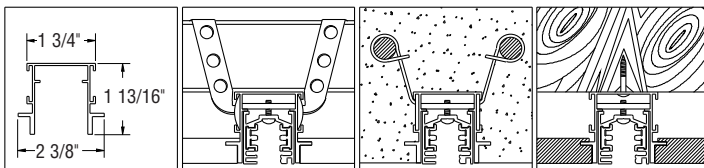


# Recessed Track Installation

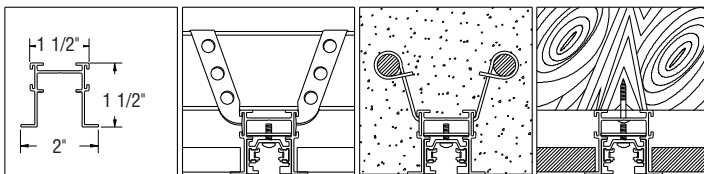
Recessed housings are supplied complete with galvanized, perforated straps for housing installation and hardware to install track sections into housing.



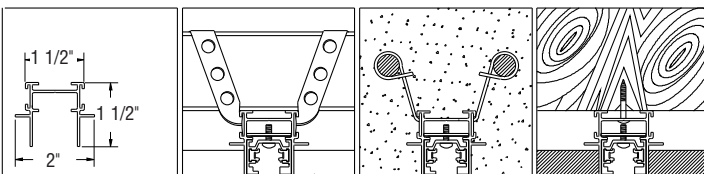
Flanged profile — 3-Circuit



Flush profile — 3-Circuit



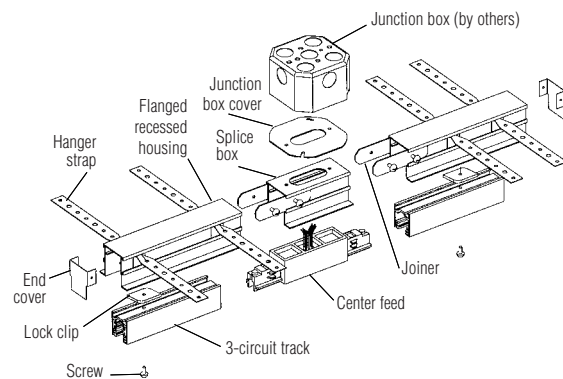
Flanged profile — 1-Circuit



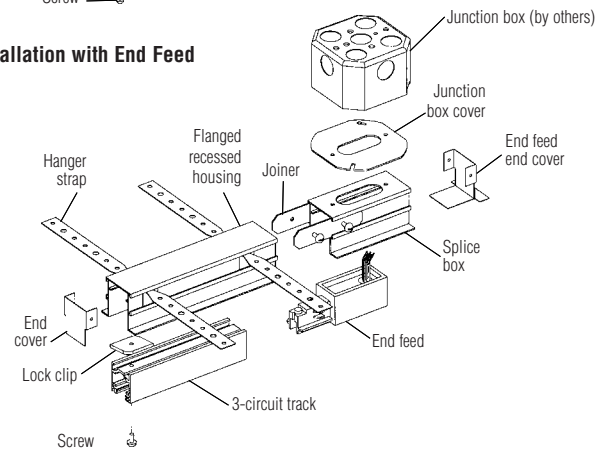
Flush profile — 1-Circuit

Recessed track is fed from recessed splice box compartments, installed at end or between recessed housing sections. "L," "T" and "X" connectors and corresponding recessed housings are available for pattern or grid configurations. All housings can be field cut for custom lengths.

### Installation with Center Feed



### Installation with End Feed





# VIVO

## Metal Halide (1) G8.5 Base, 70W max.

## Track Accent Light

online Find it Fast **298**



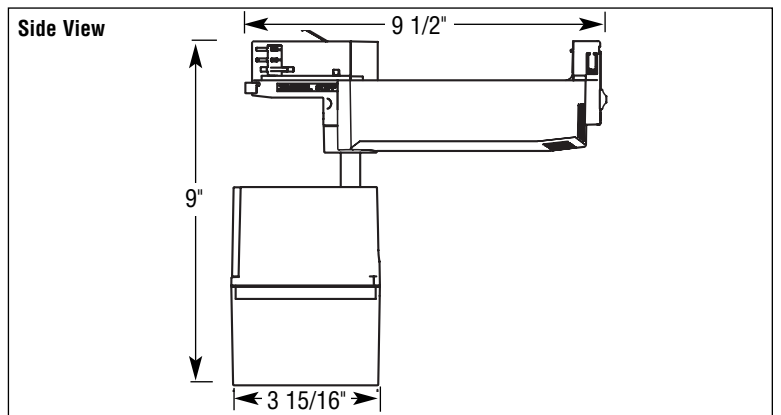
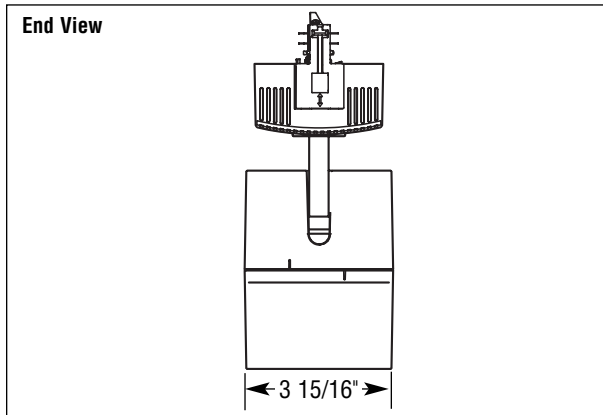
**Applications:** VIVO offers a unique combination of style and performance quality for retail stores, showrooms, art galleries, and commercial spaces. Three different sized models, designed for innovative light sources and a variety of accessories, make VIVO a highly flexible and adaptable track system. The high-efficacy ceramic metal halide lamp source and the effective distribution created by the optical system make VIVO an excellent way to meet strict energy codes. The photometric performance of the VIVO-M ensures highly attractive, smooth and striation-free beam patterns for accentuated presentations.

**ZOOM!** 2-week delivery on items shown in gray

Type: \_\_\_\_\_  
Project: \_\_\_\_\_

ORDERING NOTE: Specify lamp, reflector, finish and accessories.

▼Fixture	▼Lamp	▼Reflector	▼Finish	▼Accessories
<b>VIVOM</b>				
<b>VIVOM</b> VIVO Ceramic Metal Halide Track Fixture, Medium Housing, 3 Circuit Track Adapter	<b>20T45G85</b> T4.5, 20W, G8.5 Base <b>39T45G85</b> T4.5, 39W, G8.5 Base <b>70T45G85</b> T4.5, 70W, G8.5 Base	<b>S</b> Spot - 15° <b>F</b> Flood - 25° <b>WF</b> Wide Flood - 40°	<b>SRM</b> Silver Micro <b>WHM</b> White Micro	<b>084-IR/UVA-GL</b> IR/UVA Filter <b>084-UVA-GL</b> UVA Filter <b>084-SDIF-GL</b> Diffuser (Solite) <b>084-SL-GL</b> Spread Lens <b>084-RD-DGL</b> Red Dichroic <b>084-BL-DGL</b> Blue Dichroic <b>084-GR-DGL</b> Green Dichroic <b>084-YL-DGL</b> Yellow Dichroic <b>084-HXLVR</b> Hexcell Louver <b>084-4D-BD</b> Barn Doors



IBEW Union Made

**1. Adapter / Trackbox** - Die-cast aluminum trackbox with integral Zumtobel 3-circuit universal adapter. Silver-plated contact ensures rigid electrical and mechanical connection. Includes integrated switch, which allows for on/off switching and changing of circuits giving project flexibility.

**2. Lamp Housing** - Track head consists of 2-piece die-cast aluminum housing finished in microstructure paint, white or silver. Front cylinder of housing accommodates reflector and is fixed to rear housing via bayonet joint (twist and lock mechanism) for extremely easy relamping and changing of accessories.

**3. Swivel and Vertical Adjustment** - Toolless locking of track fixture is achieved via integral self-decelerating ball-and-socket joint, adjustable by means of thermally isolated clip using the Squeeze, Move and Retain (SMART) system. Lampholder has maximum rotation of 360° and vertical adjustment of 90°.

**4. Ballast** - Electronic 20W-ANSI M-175, 39W-ANSI M-130E, or 70W-ANSI M-139E 120V thermally protected metal halide safety ballast integral to trackbox.

**5. Lamp** - (1) T4.5 metal halide lamp 70W maximum, for G8.5 base socket. Lamp supplied by others.

**6. Reflector** - Photometrically-optimized faceted aluminum alzak reflector is available in spot, flood and wide flood beam distributions.

**7. Internal Accessory holder** - Front cylinder of housing internally accommodates up to three accessories including a protective clear glass lens and provides a visually clean appearance.

**8. Weight** - 3.0 lbs.

**NOTE: All VIVO track fixtures are only available with three circuit track adapter. Not suitable for point outlets.**

**For use on Zumtobel 3-circuit track, and U.L. listed for use on Nordic Aluminum 3-circuit track also.**

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# Photometric Data

## VIVOM-39T45G85-S (1) 39W T4.5

TRACK FIXTURE, 1x39W G8.5 BASE MH, SPOT

PRORATED FROM ST5855-3072

Total Luminaire Efficiency 55%

INITIAL LAMP LUMENS = 3300

INPUT WATTS = 43

## VIVOM-39T45G85-F (1) 39W T4.5

TRACK FIXTURE, 1x39W G8.5 BASE MH, FLOOD

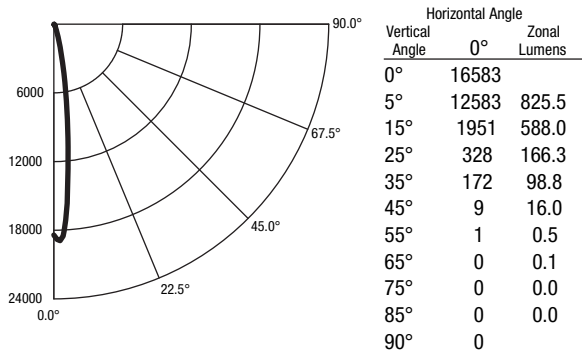
PRORATED FROM ST5854-3071

Total Luminaire Efficiency 54%

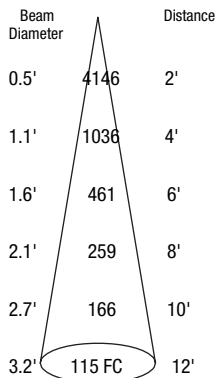
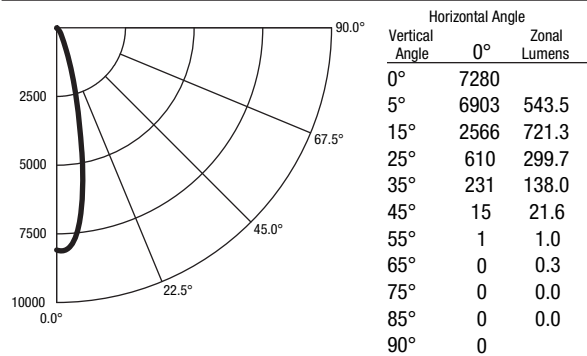
INITIAL LAMP LUMENS = 3300

INPUT WATTS = 43

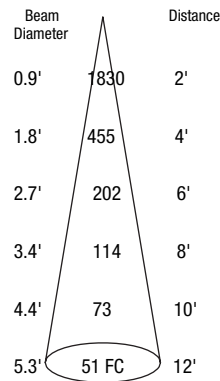
### Candela Distribution



### Candela Distribution



Beam center footcandles shown in "cone of light" are initial, LLF = 1.0



Beam center footcandles shown in "cone of light" are initial, LLF = 1.0

# Photometric Data

## VIVOM-39T45G85-WF (1) 39W T4.5

TRACK FIXTURE, 1X39W G8.5 BASE MH, FLOOD

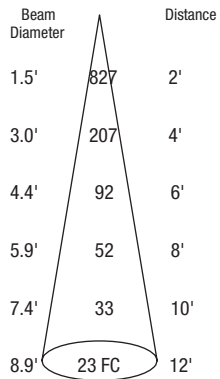
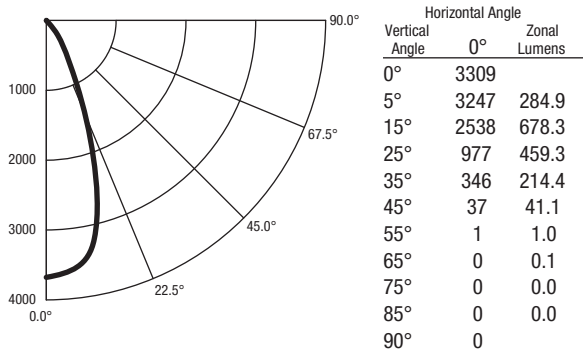
PRORATED FROM ST5856-3070

Total Luminaire Efficiency 52%

INITIAL LAMP LUMENS = 3300

INPUT WATTS = 43

### Candela Distribution



Beam center footcandles shown in "cone of light" are initial, LLF = 1.0

**PHILIPS**

# MasterColor CDM-T 35W/830 T6 1CT

Keyword search

[+ Advanced search](#)

## MasterColor CDM-T 35W/830 T6 1CT

### Lamp Description

Range of single-ended T6 high-efficiency ceramic metal halide lamps with a stable color over lifetime and a crisp, sparkling light.

- [Download product data sheet](#)
- [Print page](#)

<input type="checkbox"/> Product specs:	<input type="checkbox"/> + Images:	<input type="checkbox"/> + Family info:
<a href="#">MSDS sheets</a>		
<b>PRODUCT DATA</b>		
Product Number	223289	
Full product name	MasterColor CDM-T 35W/830 T6 1CT	
Ordering Code	223289	
Pack type	1 Lamp in a Folding Carton	
Pieces per Sku	1	
Skus/Case	12	
Pack UPC	046677223281	
EAN2US		
Case Bar Code	50046677223286	
Successor Product number		
<b>General Characteristics</b>		
Base	G12	
Bulb	T6 [Diameter: 6/8 inch /19mm]	
Bulb Finish	Clear	
Operating Position	Universal [Any or Universal (U)]	
Packing Type	1CT [1 Lamp in a Folding Carton]	
Packing Configuration	12	
Ordering Code	CDM35/T6/830	

Pack UPC	046677223281
Case Bar Code	50046677223286
ANSI Code HID	M130/E
<b>Electrical Characteristics</b>	
System Power EL	44 W
Watts	35W
Lamp Wattage EL	38 W
Lamp Voltage	88 V
Dimmable	No
<b>Light Technical Characteristics</b>	
Color Code	830 [CCT of 3000K]
Color Rendering Index	81 Ra8
Color Designation	Warm White
Color Description	830 Warm White
Color Temperature	3095 K
Initial Lumens	3300 Lm
Initial Lumens	3150 Lm
Design Mean Lumens	- Lm
<b>Product Dimensions</b>	
Overall Length C	103 mm
Diameter D	20 mm
Light Center Length L	2.21875 in
Max Overall Length (MOL) - C	3.9375 in
Diameter D	0.75 in
<b>Logistic and Packing Data</b>	
Product Number	223289

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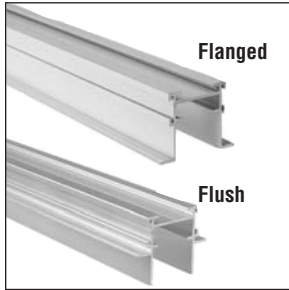
# Track

## Recessed Housings

# 4'/8'/12'

online  
Find it Fast

# 69

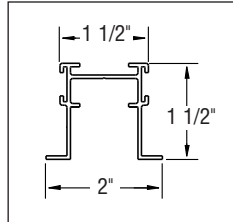


**Applications:** Flanged or flush, recessed housings are available for 1 circuit and 3 circuit straight track. Three standard finishes include white, black and satin aluminum to match straight track colors. For custom color, supply approved color chip.

**Type:** \_\_\_\_\_

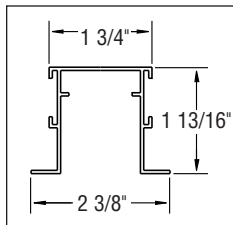
**Project:** \_\_\_\_\_

### Flanged Profile - 1-Circuit



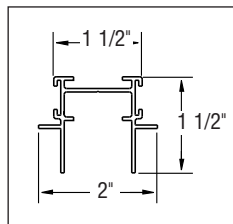
4'	8'	12'
58441WH	58481WH	58421WH
58441BK	58481BK	58421BK
58441SA	58481SA	58421SA
58441SP	58481SP	58421SP

### Flanged Profile - 3-Circuit



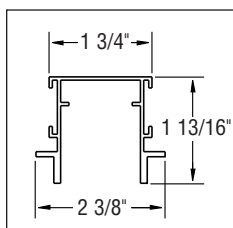
4'	8'	12'
58443WH	58483WH	58423WH
58443BK	58483BK	58423BK
58443SA	58483SA	58423SA
58443SP	58483SP	58423SP

### Flush Profile - 1-Circuit



4'	8'	12'
58641WH	58681WH	58621WH
58641BK	58681BK	58621BK
58641SA	58681SA	58621SA
58641SP	58681SP	58621SP

### Flush Profile - 3-Circuit



4'	8'	12'
58643WH	58683WH	58623WH
58643BK	58683BK	58623BK
58643SA	58683SA	58623SA
58643SP	58683SP	58623SP



IBEW Union Made

- WH** – White
- BK** – Black
- SA** – Satin Aluminum (to match titan track fixtures)
- SP** – Special color (approved color chip required)

Note: Recessed housings are field cuttable.

For electrical load, see National Electrical Code, Article 410, Paragraph 102.

In a continuing effort to offer the best product possible we reserve the right to change, without notice, specifications or materials that in our opinion will not alter the function of the product. Technical specification sheets that appear on [www.zumtobel.us](http://www.zumtobel.us) are the most recent version and supersede all other versions that exist in any other printed or electronic form.

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1/30/08

TC-3

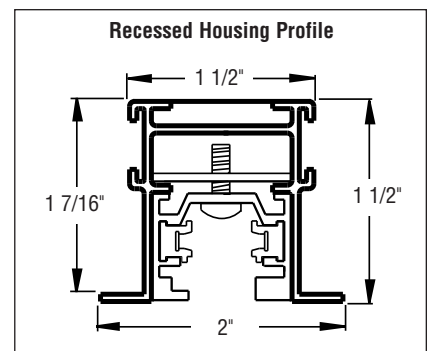
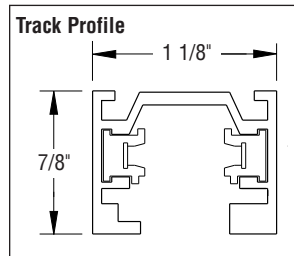
**ZUMTOBEL**

## 1-Circuit Track

Size: 7/8" x 1 1/8"  
extruded aluminum

Amps: 1 x 20 amps

Rating: 120 volt

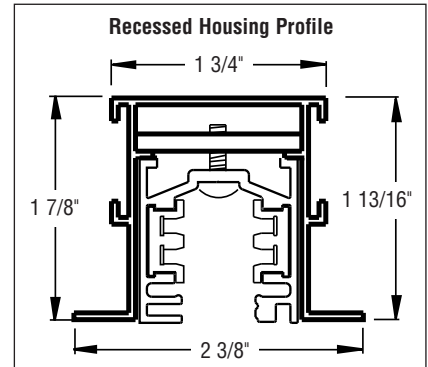
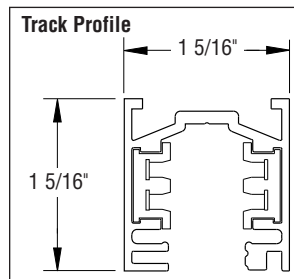


## 3-Circuit Track

Size: 1 5/16" x 1 5/16"  
extruded aluminum

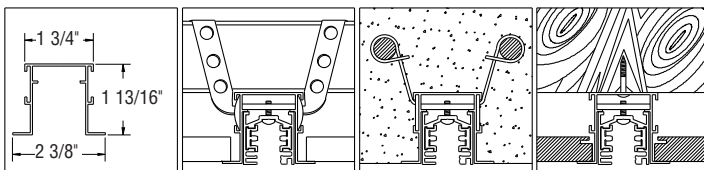
Amps: 3 x 20 amps maximum  
(3Ø only)

Rating: 120/240 volt

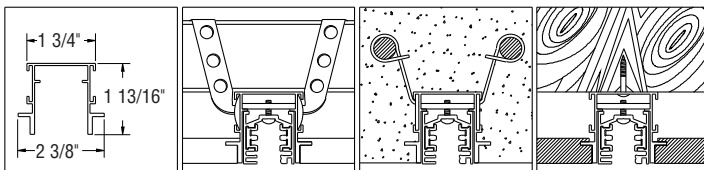


# Recessed Track Installation

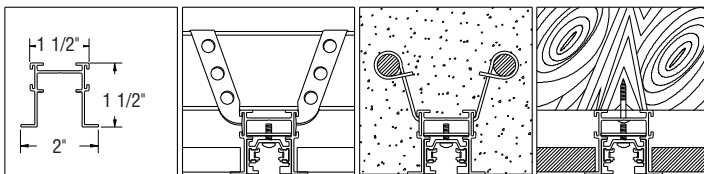
Recessed housings are supplied complete with galvanized, perforated straps for housing installation and hardware to install track sections into housing.



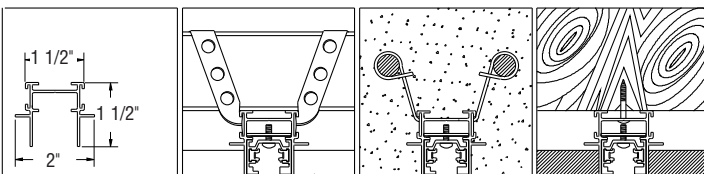
Flanged profile — 3-Circuit



Flush profile — 3-Circuit



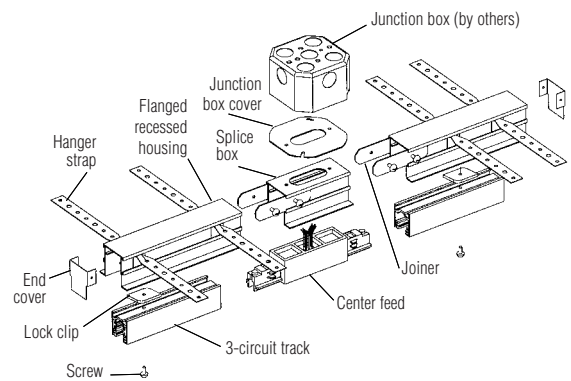
Flanged profile — 1-Circuit



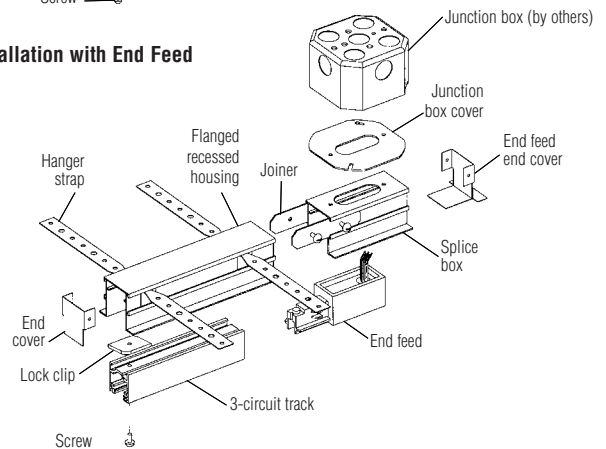
Flush profile — 1-Circuit

Recessed track is fed from recessed splice box compartments, installed at end or between recessed housing sections. "L," "T" and "X" connectors and corresponding recessed housings are available for pattern or grid configurations. All housings can be field cut for custom lengths.

### Installation with Center Feed



### Installation with End Feed





# ML™

Includes SYNTO optics



## Fluorescent One or Two Lamp T8

# Recessed 1' x 4'

online  
Find it Fast

# 610

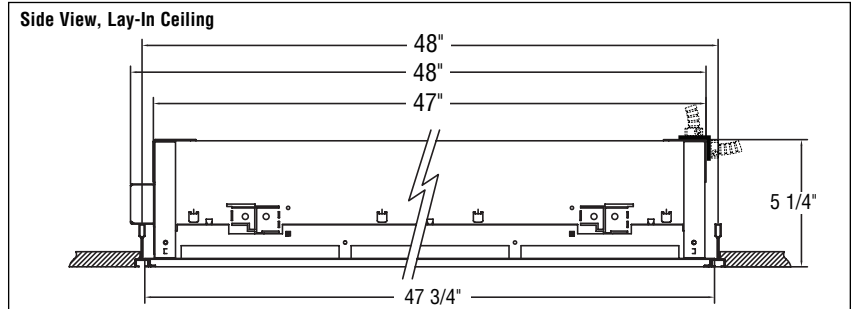
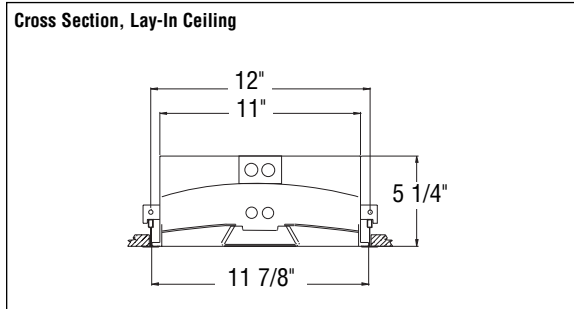
**Applications:** An innovative lighting chamber concept with **five center diffuser options** including **SYNTO optics** shielding the lamp(s) from view, while directing light where needed in a glare-free and efficient way. Ideal for offices, retail, health care and educational facilities. Fixtures with optional blue, green and yellow acrylic color inserts give the diffusers a uniform, softly tinted glow.

Type: \_\_\_\_\_ Quantity: \_\_\_\_\_ Project: \_\_\_\_\_

ML4	14				
FIXTURE/CEILING TYPE	LENGTH	LAMPING	OPTIC	BALLAST/VOLTAGE	OPTIONS
<b>ML4U</b> ML Recessed 15/16" Lay-In, Flush 9/16" Slot-Grid, Flush 9/16" Lay-In, Tegular	<b>14</b> 1' x 4'	<b>1328</b> (1) 32W T8 <b>2328</b> (2) 32W T8 <b>1328XP</b> (1) 32W T8, Higher Output <b>2328XP</b> (2) 32W T8, Higher Output	<b>MP</b> Micro-Pyramidal Optic <b>OL</b> Opal Acrylic Lens <b>MD</b> MicroGrid Diffuser, Titan <b>C</b> Matte SYNTO Louver <b>W</b> White SYNTO Louver <b>CO</b> Matte SYNTO Louver with Frosted Inlay <b>WO</b> White SYNTO Louver with Frosted Inlay	<b>U</b> Universal 120/277V <b>347</b> 347V <b>DA</b> * Dimming, Analog (0-10V) <b>DD</b> * Dimming, DALI <b>DE</b> * Dimming, Lutron ECO-10™ <b>DH</b> * Dimming, Lutron HiLume® <b>DSC</b> * Dimming, Lutron EcoSystem™, Control Fixture <b>DSN</b> * Dimming, Lutron EcoSystem™, Non-control Fixture <b>STDM</b> * Dimming, Step	<b>WF</b> Whip Flex 3/8" X 6' 14 AWG <b>WN</b> * Whip Flex 3/8" X 6' 14 AWG (NYC) <b>EM1</b> * Standby Battery Pack/1 lamp <b>SS</b> Separate Switching <b>AR</b> Air Return <b>CP</b> Chicago Plenum <b>F</b> Fusing <b>CB2</b> ** Color inlay, blue <b>CG2</b> ** Color inlay, green <b>CY2</b> ** Color inlay, yellow
<b>ML4F</b> ML Recessed 9/16" Lay-In, Flush		<b>1258</b> (1) 25W T8 <b>2258</b> (2) 25W T8	<b>W</b> White SYNTO Louver	<b>DSN</b> * Dimming, Lutron EcoSystem™, Non-control Fixture <b>STDM</b> * Dimming, Step	
<b>ML4E</b> ML Recessed Concealed	<b>1288</b> (1) 28W T8 <b>2288</b> (2) 28W T8 <b>1308</b> (1) 30W T8 <b>2308</b> (2) 30W T8	<b>WO</b> White SYNTO Louver with Frosted Inlay			

*For flange details, see next page*

*\* Specify "1" for 120V or "2" for 277V. Some lamp types may not be available.  
\*\* Can be ordered with complete fixtures only. To order separately consult factory.  
STDM not available for 347V.*



Suitable for damp locations  
NYC Approved

IBEW Union Made  
US patent pending PCT/EP01/01269  
US patent pending PCT/EP01/01270  
US Patent D 477,891

Lead Time? Double-click on  
<http://www.zumtobel.us/PDB?lang=EN&id=10068&iso2=USfor Lead Times>.

A = ZOOM! Quick Ship - ships in 2 weeks  
B = ships in 4 weeks C = ships in 8 weeks

- Housing** - 20 gauge cold-rolled steel. Finish is powder-coated white. Post painted. Right-angle access plate (two per fixture) allows feed from top or side of unit.
- Light Chamber** - Powder-coated high-reflectance white interior reflector and shaped extruded acrylic diffusers. Fixtures available with optional color inlays in blue, green, or yellow.
- Optics** - **MP**: Clear, extruded micro-pyramidal optic diffuser and clear acrylic inlay. **OL**: Extruded, opal acrylic lens. **MD**: Metal grid in Titan finish, backed with a translucent opal acrylic extruded lens. **C/W**: Matte or white finish 16-cell SYNTO

- louver** has blades 7/8" high by 17/16" o.c. Optional opal inlay is white acrylic. Optic assembly pulls down for lamp access.
- Lamps/sockets** - One or two T8 fluorescent lamps with medium bi-pin (G-13) sockets. Wattage options include standard 32W T8, higher lumen output 32W T8 XP and energy saving 25W, 28W or 30W T8. Lamps supplied by others.
- Ballast** - Universal voltage, high efficiency electronic 120/277V ballast with normal ballast factor (0.87) . Consult factory for 347V and other ballast requirements. Ballasts are mounted in luminaire. Accessible from below.

- Dimming** - In control fixtures with Lutron EcoSystem dimming, control wires are brought to an interface. Consult factory for location of control wire feed. Consult factory for specific dimming requirements other than those listed above.
- Mounting** - Integral bend out tabs are provided in the universal (**ML4U** and **ML4F**) ceiling fixture types. Adjustable mounting brackets provided for selected concealed T-bar or gypsum board (**ML4E**) ceiling installations.
- Standby Battery Pack** - Integral standby battery pack with integral test switch.
- Weight** - 22.0 lbs.

OTHER ML4 FAMILY LUMINAIRES	FIF #	OTHER ML4 FAMILY LUMINAIRES	FIF #
ML4 1X2 T5 / T5 HO / T5TT LAMPING	311	ML4 1X2 T8 LAMPING	608
ML4 2X2 T5 / T5 HO / T5TT LAMPING	312	ML4 2X2 T8 LAMPING	609
ML4 1X4 T5 / T5 HO LAMPING	313	ML4 2X4 T8 LAMPING	611
ML4 2X4 T5 / T5 HO LAMPING	314	ML4A SURFACE MOUNT	315

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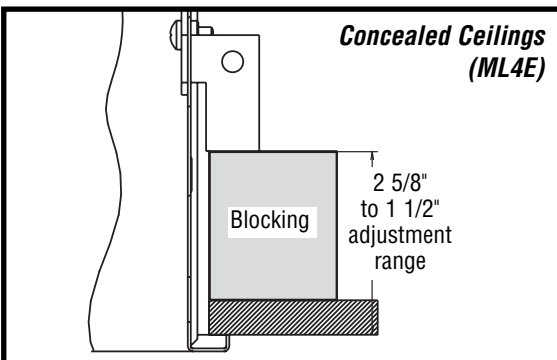
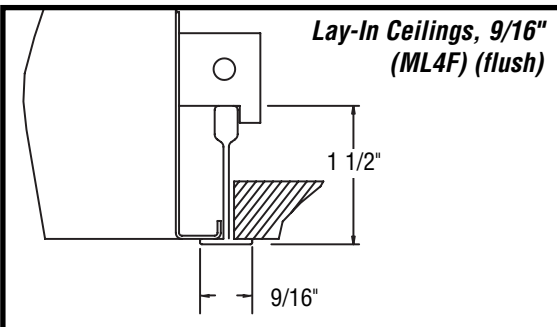
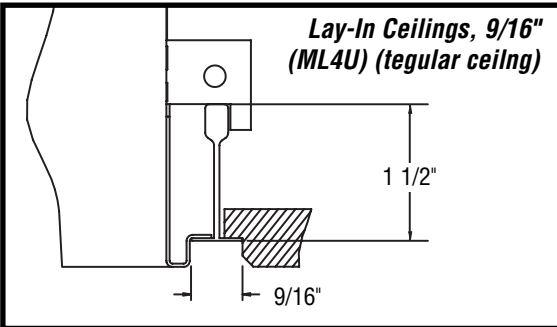
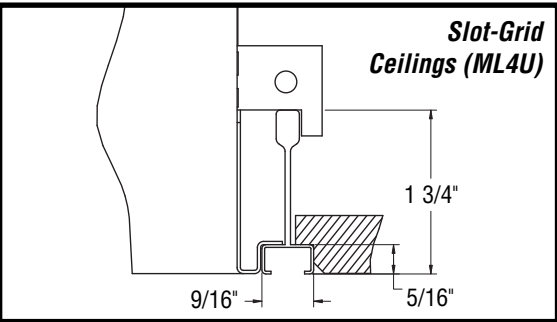
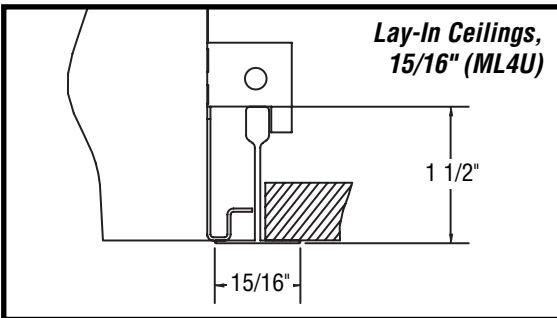
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## ML4-15

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## Mounting with common ceiling types



## ML4 14 2328 MP (2) 32W T8

1x4 RECESSED, MICRO-PYRAMIDAL OPTIC DIFFUSER

LTL 13277

Total Luminaire Efficiency 61%

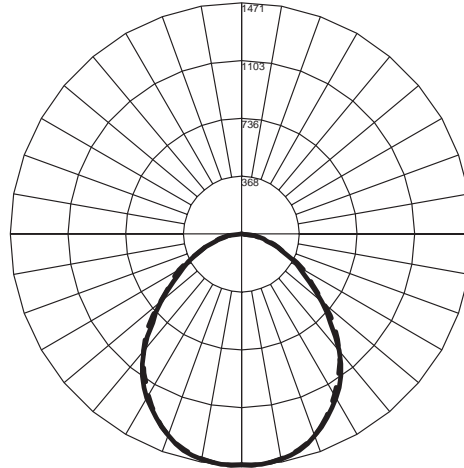
0% Uplight 100% Downlight

Spacing Criteria

Lateral Plane 0° 90°  
1.18 1.22

TOTAL LAMP LUMENS = 5700

INPUT WATTS = 55



Maximum Candela = 1471 Located At Horizontal Angle = 45, Vertical Angle = 2.5  
# 1 - Vertical Plane Through Horizontal Angles (45 - 225) (Through Max. Cd.)  
# 2 - Vertical Plane Through Horizontal Angles (90 - 270)

### LUMINANCE DATA (cd/sq.m)

Angle In Degrees	Average 0-Deg	Average 45-Deg	Average 90-Deg
45	3468	3946	3744
55	2946	3172	3050
65	2337	2658	2572
75	1869	2266	2138
85	1369	1901	1977

### ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-30	1124.67	19.7	32.4
0-40	1793.89	31.5	51.8
0-60	2902.26	50.9	83.7
0-90	3466.31	60.8	100
90-120	0	0	0
90-130	0	0	0
90-150	0	0	0
90-180	0	0	0
0-180	3466.31	60.8	100

### COEFFICIENTS OF UTILIZATION - ZONAL CAVITY METHOD

Effective Floor Cavity Reflectance 0.20

RC	80				70				50				30				10				0
	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	50			
0	72	72	72	72	71	71	71	71	68	68	68	65	65	65	62	62	62	61			
1	67	64	62	59	65	63	60	58	60	58	57	58	56	55	55	54	53	52			
2	61	56	53	49	59	55	52	49	53	50	48	51	49	46	49	47	45	44			
3	56	50	45	42	55	49	45	41	47	44	41	46	42	40	44	41	39	38			
4	52	45	40	36	50	44	39	36	42	38	35	41	37	35	40	37	34	33			
5	48	40	35	31	46	40	35	31	38	34	31	37	33	30	36	33	30	29			
6	44	36	31	27	43	36	31	27	35	30	27	34	30	27	33	29	27	25			
7	41	33	28	24	40	33	28	24	32	27	24	31	27	24	30	27	24	23			
8	38	30	25	22	37	30	25	22	29	25	22	28	25	22	28	24	22	20			
9	36	28	23	20	35	28	23	20	27	23	20	26	22	20	26	22	20	18			
10	34	26	21	18	33	26	21	18	25	21	18	24	21	18	24	20	18	17			

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11/6/08

ML4-15A

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## ML4 14 2328 OL (2) 32W T8

1x4 RECESSED, OPAL ACRYLIC DIFFUSER

LTL 13278

Total Luminaire Efficiency 66%

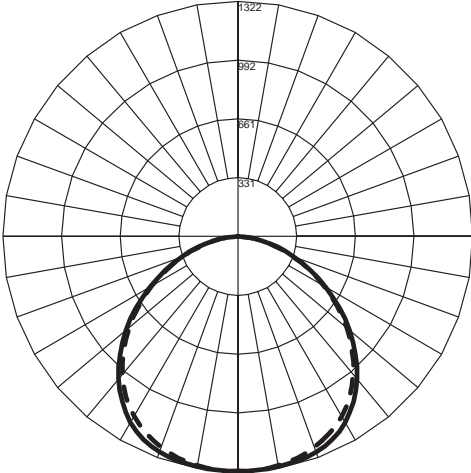
0% Uplight 100% Downlight

Spacing Criteria

Lateral Plane 0° 90°  
1.24 1.36

TOTAL LAMP LUMENS = 5700

INPUT WATTS = 55



Maximum Candela = 1322 Located At Horizontal Angle = 45, Vertical Angle = 2.5  
# 1 - Vertical Plane Through Horizontal Angles (45 - 225) (Through Max. Cd.)  
# 2 - Vertical Plane Through Horizontal Angles (90 - 270)

### LUMINANCE DATA (cd/sq.m)

Angle In Degrees	Average 0-Deg	Average 45-Deg	Average 90-Deg
45	3815	4264	4386
55	3443	3940	4032
65	2956	3489	3536
75	2369	2855	2983
85	1711	2167	2091

### ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-30	1047.57	18.4	28.1
0-40	1724.69	30.3	46.2
0-60	3008.61	52.8	80.6
0-90	3731.29	65.5	100
90-120	0	0	0
90-130	0	0	0
90-150	0	0	0
90-180	0	0	0
0-180	3731.29	65.5	100

### COEFFICIENTS OF UTILIZATION - ZONAL CAVITY METHOD

Effective Floor Cavity Reflectance 0.20

RC	80			70			50			30			10			0		
	70	50	30	10	70	50	30	10	50	30	10	50	30	10				
0	78	78	78	78	76	76	76	76	73	73	73	70	70	70	67	67	67	65
1	71	68	66	63	70	67	64	62	64	62	60	61	60	58	59	58	57	55
2	65	60	55	52	63	58	54	51	56	53	50	54	51	49	52	50	48	46
3	59	52	47	43	58	51	47	43	50	45	42	48	44	41	46	43	40	39
4	54	47	41	37	53	46	40	36	44	39	36	43	39	35	41	38	35	33
5	50	42	36	31	49	41	35	31	39	35	31	38	34	31	37	33	30	29
6	46	37	32	27	45	37	31	27	36	31	27	35	30	27	34	30	27	25
7	43	34	28	24	42	33	28	24	32	28	24	32	27	24	31	27	24	22
8	40	31	25	22	39	31	25	22	30	25	21	29	25	21	28	24	21	20
9	37	28	23	19	36	28	23	19	27	23	19	27	22	19	26	22	19	18
10	35	26	21	18	34	26	21	18	25	21	18	25	20	17	24	20	17	16

## ML4 14 2328 MD (2) 32W T8

1x4 RECESSED, MICROGRID DIFFUSER

LTL 13279

Total Luminaire Efficiency 54%

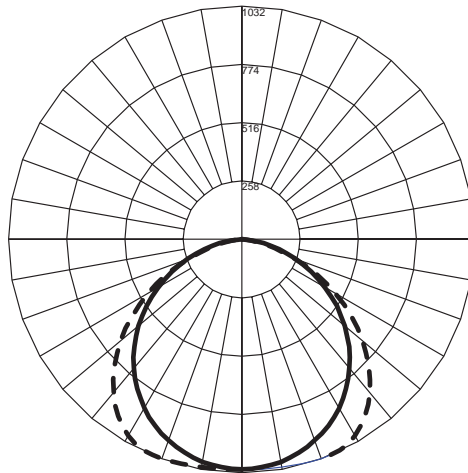
0% Uplight 100% Downlight

Spacing Criteria

Lateral Plane 0° 90°  
1.26 1.44

TOTAL LAMP LUMENS = 5700

INPUT WATTS = 55



Maximum Candela = 1032 Located At Horizontal Angle = 90, Vertical Angle = 20  
# 1 - Vertical Plane Through Horizontal Angles (90 - 270) (Through Max. Cd.)  
# 2 - Vertical Plane Through Horizontal Angles (0 - 180)

### LUMINANCE DATA (cd/sq.m)

Angle In Degrees	Average 0-Deg	Average 45-Deg	Average 90-Deg
45	3154	3613	3735
55	2969	3368	3426
65	2666	2964	2885
75	2202	2189	1933
85	1445	1065	836

### ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-30	828.97	14.5	27.1
0-40	1386.78	24.3	45.4
0-60	2475.6	43.4	81
0-90	3056.2	53.6	100
90-120	0	0	0
90-130	0	0	0
90-150	0	0	0
90-180	0	0	0
0-180	3056.2	53.6	100

### COEFFICIENTS OF UTILIZATION - ZONAL CAVITY METHOD

Effective Floor Cavity Reflectance 0.20

RC	80			70			50			30			10			0		
	70	50	30	10	70	50	30	10	50	30	10	50	30	10				
0	64	64	64	64	62	62	62	62	60	60	60	57	57	57	55	55	55	54
1	59	56	54	52	57	55	53	51	53	51	49	50	49	48	49	47	46	45
2	53	49	45	42	52	48	45	42	46	43	41	44	42	40	43	41	39	38
3	49	43	39	35	47	42	38	35	41	37	34	39	36	34	38	35	33	32
4	44	38	33	30	43	37	33	30	36	32	29	35	31	29	34	31	28	27
5	41	34	29	26	40	33	29	25	32	28	25	31	28	25	30	27	25	24
6	38	31	26	22	37	30	26	22	29	25	22	28	25	22	27	24	22	21
7	35	28	23	20	34	27	23	20	26	22	19	26	22	19	25	22	19	18
8	32	25	21	17	32	25	20	17	24	20	17	23	20	17	23	20	17	16
9	30	23	19	16	30	23	19	16	22	18	16	22	18	15	21	18	15	14
10	28	21	17	14	28	21	17	14	20	17	14	20	16	14	19	16	14	13

## ML4 14 2328 W (2) 32W T8

1x4 RECESSED, WHITE LOUVER

LTL 13281

Total Luminaire Efficiency 62%

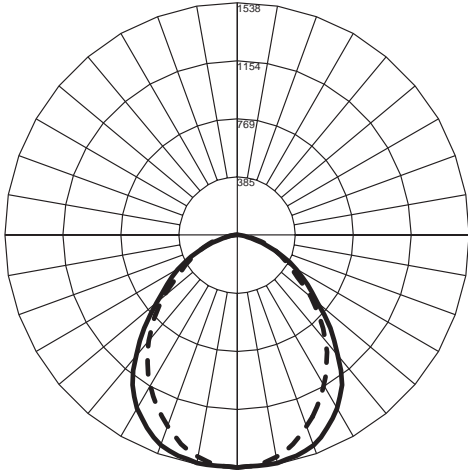
0% Uplight 100% Downlight

Spacing Criteria

Lateral Plane 0° 90°  
1.14 1.28

TOTAL LAMP LUMENS = 5700

INPUT WATTS = 55



Maximum Candela = 1538 Located At Horizontal Angle = 0, Vertical Angle = 0  
# 1 - Vertical Plane Through Horizontal Angles (0 - 180) (Through Max. Cd.)  
# 2 - Vertical Plane Through Horizontal Angles (90 - 270)

### LUMINANCE DATA (cd/sq.m)

Angle In Degrees	Average 0-Deg	Average 45-Deg	Average 90-Deg
45	3632	4072	4082
55	2825	3258	3281
65	2501	2611	2627
75	2125	1972	1703
85	1293	1103	1141

### ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-30	1178.24	20.7	33.2
0-40	1881.8	33	53.1
0-60	3022.17	53	85.2
0-90	3546.2	62.2	100
90-120	0	0	0
90-130	0	0	0
90-150	0	0	0
90-180	0	0	0
0-180	3546.2	62.2	100

### COEFFICIENTS OF UTILIZATION - ZONAL CAVITY METHOD

Effective Floor Cavity Reflectance 0.20

RC	80				70				50				30				10				0
	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	0			
0	74	74	74	74	72	72	72	72	69	69	69	66	66	66	63	63	63	62			
1	68	66	63	61	67	64	62	60	62	60	58	59	58	57	57	56	55	54			
2	63	58	54	51	61	57	53	50	55	52	49	53	50	48	51	49	47	46			
3	58	52	47	43	56	51	46	43	49	45	42	47	44	41	46	43	41	39			
4	53	46	41	37	52	45	41	37	44	40	36	42	39	36	41	38	36	34			
5	49	42	36	32	48	41	36	32	40	35	32	38	35	32	37	34	31	30			
6	46	38	32	29	44	37	32	29	36	32	28	35	31	28	34	31	28	27			
7	42	34	29	26	41	34	29	25	33	28	25	32	28	25	31	28	25	24			
8	40	31	26	23	39	31	26	23	30	26	23	29	26	23	29	25	22	21			
9	37	29	24	21	36	29	24	21	28	24	21	27	23	21	27	23	20	19			
10	35	27	22	19	34	27	22	19	26	22	19	25	21	19	25	21	19	18			

Zumtobel Lighting Inc. ©2008  
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Highland, NY 12528-2630

TEL (845) 691-6262  
(800) 932-0633  
FAX (845) 691-6289

In a continuing effort to offer the best product possible we reserve the right to change, without notice, specifications or materials. Technical specification sheets that appear on [www.zumtobel.us](http://www.zumtobel.us) are the most recent version and supersede all other versions that exist in any other printed or electronic form.



## 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.

### 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



### 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)

<b>Job Name:</b> <input style="width: 90%; height: 20px;" type="text"/>	<b>Model Numbers:</b> <input style="width: 95%; height: 20px;" type="text"/>
<b>Job Number:</b> <input style="width: 100%; height: 20px;" type="text"/>	<input style="width: 95%; height: 20px;" type="text"/>

## 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

<b>Job Name:</b> <input style="width: 90%; height: 20px;" type="text"/>	<b>Model Numbers:</b> <input style="width: 60%; height: 20px;" type="text"/> <input style="width: 40%; height: 20px;" type="text"/>	
<b>Job Number:</b> <input style="width: 100%; height: 20px;" type="text"/>	<input style="width: 30%; height: 20px;" type="text"/>	<input style="width: 70%; height: 20px;" type="text"/>

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
<b>T8 linear and U-bent</b>  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		

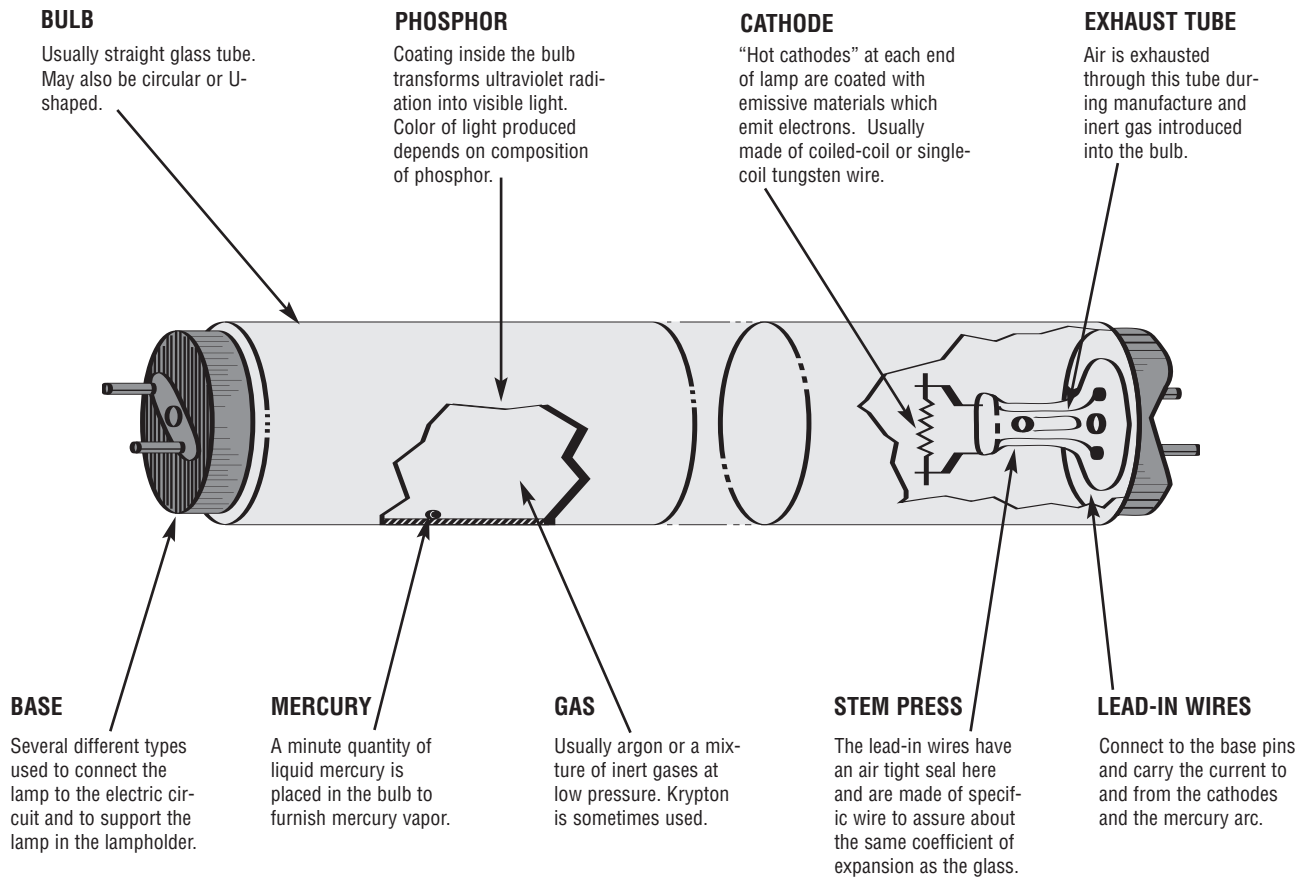


Job Name: <input type="text"/> Job Number: <input type="text"/>	Model Numbers: <input type="text"/> <input type="text"/>
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## OSRAM SYLVANIA: THE LEADER IN ENERGY SAVING FLUORESCENT LAMPS

The fluorescent lamp is an electric discharge device which utilizes a low pressure mercury vapor arc to generate ultra-violet (plus a little visible) energy. The ultra-violet energy is absorbed by a phosphor coat on the inside of the glass tube and converted by the phosphor to visible wavelengths; the wavelengths of the light generated are determined by the composition of the phosphor. In addition to the small amount of mercury vapor, the fluorescent tube contains an atmosphere of an inert gas, usually argon, krypton, neon, or a mixture of two or more of these gases. The pressure of the gases contained in the lamp is very low, usually from 2 to 3 torr. Atmospheric pressure is 760 torr.



## HOW TO READ PRODUCT INFORMATION - FLUORESCENT

Nominal Wattage	Bulb	Nominal Length(in)	MOL (in)	Base	Product Number	Ordering Abbreviation	Pkg Qty	Avg Rated Life (hrs)	CCT (K)	CRI	Approx Lumens Initial	Approx Lumens Mean @25°C/77°F (@35°C/95°F)	Symbols & Footnotes
32	T8	48	47.78	Med Bipin	21763	<b>F032/835XP/ECO</b>	30	24000	3500	85	3000	2850	☉  2,21,31,35,39,60,70
34	T12	48	47.78	Med Bipin	24594	<b>F34CW/SS</b> Formerly F40CW/SS	30	20000	4200	60	2650	2279	☉ 2,10,13,19,21,42
54	T5	48	45.5	Mini Bipin	20857	<b>FP54/830/HO</b>	40	20000	3000	85	4450 5000	4228 4750	 2,21,26,35,59
60	T12	96	94	Single Pin	29815	<b>F96T12/CW/SS</b>	15	12000	4200	60	5300	4664	☉ 2,15,21

<b>Nominal Wattage</b>	Design wattage on reference ballast. Actual wattage dependent on ballast.
<b>Bulb</b>	Describes the shape of the bulb followed by the bulb's diameter at its widest point. The diameter value is expressed in eighths of an inch. Ex. T = Tubular, 8 = 8/8 inch = 1 inch. Please see page 134 for bulb illustrations.
<b>Base</b>	Please see page 134 for base illustrations.
<b>Nominal Length</b>	The nominal length of linear fluorescent lamps is typically measured from back of lampholder to back of lampholder. PENTRON® linear lamp, CURVALUME® and Circline lamps are exceptions. The nominal length given for PENTRON linear lamps is the closest familiar nominal length. CURVALUME lamps are measured from the face of the bases to the outside of the glass bend. The measurement for Circline lamps is the outside diameter. Values are in inches.
<b>MOL</b>	Maximum overall length. The length of the lamp measured in inches.
<b>Symbols &amp; Footnotes</b>	Most symbols and footnotes that apply to a specific product will appear in this space. The explanations of the symbols and footnotes are at the end of the fluorescent section.
<b>Ordering Abbreviation</b>	A text description of the lamp. Please see below for several examples and explanations of some of the codes.
<b>CCT</b>	Correlated Color Temperature. The degree of "whiteness" of the light. Expressed in kelvins (K). Please see page 131 for more information.
<b>CRI</b>	Color Rendering Index. A numbering system for rating the relative color rendering quality of a light source compared to a standard. Please see page 131 for more information.
<b>Initial &amp; Mean Lumens</b>	Initial lumens are measured when the lamp has been operating for 100 hours. Mean lumens are typically measured at 40% of the rated life of the lamp. For longer life lamp such as the OCTRON® XP® lamps, the mean lumens are measured at the same point in time as they are measured for the standard lamps they replace. Fluorescent lamp lumens are typically measured at 25°C (77°F). The lamp lumens are measured at both 25°C (77°F) and 35°C (95°F) for PENTRON® linear lamps.

### How to Read Ordering Abbreviations

<b>F032/835XP/ECO</b>		<b>F34CW/SS</b>		<b>FP54/830/HO</b>		<b>F96T12/CW/SS</b>	
F	Fluorescent	F	Fluorescent	F	Fluorescent	F	Fluorescent
0	OCTRON®	34	Nominal lamp	P	PENTRON	96	96" nominal length
32	Nominal lamp wattage		wattage	54	Nominal lamp wattage	T	Tubular Shape Bulb
8	85 CRI	CW	Cool White phosphor	8	85 CRI	12	Bulb diameter; 1 1/8 inch = 1 1/2 inches
35	3500K CCT	SS	SUPERSAVER® - reduced wattage lamp	30	3000K CCT	CW	Cool White phosphor
XP®	EXtended Performance			HO	High Output	SS	SUPERSAVER - reduced wattage lamp
ECO®	ECOLOGIC® - TCLP passing lamp						

### Lamp Disposal Labeling

The following information appears on the packages of fluorescent lamps. For more information on lamp disposal labeling, see the inside back cover of this catalog.

 **Lamp Contains Mercury**

Manage in accordance with disposal laws  
See [www.lamprecycle.org](http://www.lamprecycle.org) or 1-866-666-6850

For weight and measurement information, please visit [www.sylvania.com](http://www.sylvania.com)

## FLUORESCENT LAMP COLORS

COLOR	COLOR ABBREVIATION	CORRELATED COLOR TEMPERATURE(1)	COLOR RENDERING INDEX(2)
OCTRON® "800" 2700K	827	2700	85
OCTRON XP® "800" 2700K	827	2700	85
WARM WHITE DELUXE	WWX	2900	82
WARM WHITE	WW	3000	52
WARM WHITE PLUS	WWP	3000	70
DESIGNER® 3000K	D30	3000	70
DESIGNER WARM WHITE	DWW	3000	70
DESIGNER "800" 3000K	D830	3000	80
DESIGNER WARM WHITE PLUS	DWWP	3000	80
OCTRON "700" 3000K	730	3000	75
OCTRON XP "700" 3000K	730	3000	78
OCTRON "800" 3000K	830	3000	82
OCTRON XP "800" 3000K	830	3000	85
OCTRON XPS® "800" 3000K	830	3000	85
PENTRON® 3000K	830	3000	85
GRO-LUX® Aquarium WIDE SPECTRUM	GRO/AQ/WS	3400	89
WHITE	W	3450	57
DESIGNER 3500K	D35	3500	70
DESIGNER "800" 3500K	D835	3500	80
ICETRON® 3500K	835	3500	80
PENTRON 3500K	835	3500	85
OCTRON "700" 3500K	735	3500	75
OCTRON XP "700" 3500K	735	3500	78
OCTRON "800" 3500K	835	3500	82
OCTRON XP "800" 3500K	835	3500	85
OCTRON XPS "800" 3500K	835	3500	86
NATURAL WHITE	N	3600	86
DESIGNER 4100K	D41	4100	70
DESIGNER COOL WHITE	DCW	4100	70
DESIGNER "800" 4100K	D841	4100	80
DESIGNER COOL WHITE PLUS	DCWP	4100	80
ICETRON 4100K	841	4100	80
OCTRON "700" 4100K	741	4100	75
OCTRON XP "700" 4100K	741	4100	78
OCTRON "800" 4100K	841	4100	82
OCTRON XP "800" 4100K	841	4100	85
OCTRON XPS "800" 4100K	841	4100	86
PENTRON 4100K	841	4100	85
COOL WHITE DELUXE	CWX	4100	87
LITE WHITE	LW	4150	48
COOL WHITE	CW	4200	60
COOL WHITE PLUS	CWP	4100	70
ICETRON 5000K	850	5000	80
OCTRON "700" 5000K	750	5000	75
OCTRON "800" 5000K	850	5000	80
OCTRON XP "800" 5000K	850	5000	85
OCTRON "900" 5000K	950	5000	90
PENTRON 5000K	580	5000	85
DESIGN 50®	DSGN50	5000	90
DAYLIGHT FULL SPECTRUM	DAYLIGHTFULL SPECTRUM	5000	90
DAYLIGHT®	DAYLIGHT	6500	76
DAYLIGHT 6500	DAYLIGHT6500V	6500	80
OCTRON "700" 6500K	765	6500	75
OCTRON XP "800" 6500K	865	6500	85
PENTRON 6500K	865	6500	85
DESIGNER 6500K	865	6500	80
DAYLIGHT DELUXE	DX	6500	88
OCTRON SKYWHITE	SKYWHITE	8000	88

## FLUORESCENT COMPETITIVE GUIDES

NOTE: These tables are intended only as guides and may represent another lamp company's most similar product or product family rather than an identical match. Individual manufacturer's performance values should be consulted. Environmental conditions, ballast type, and other auxiliary equipment may affect lamp performance.

### FLUORESCENT BRAND NAMES

SYLVANIA	GE*	PHILIPS**
CURVALUME® (FB)	MOD-U-LINE (U)	U-Bent (FB)
CWX		Home Light Everywhere (HL Everywhere)
DESIGN 50® (DSGN50)	Chroma 50 (C50)	Colortone 50 (C50)
DESIGNER® Series	Specification Series (SP)	SPEC or TL700
DESIGNER 800 Series	Specification Series (SPX)	Ultralume or TL800
DESIGNER Cool White	SP41	Home Light Cool (HL Cool)
DESIGNER Cool White PLUS	SPX41	41U
DESIGNER Warm White	Kitchen and Bath ULTRA (70 CRI)	SPEC30
DESIGNER Warm White PLUS (DWWP)	Kitchen and Bath ULTRA (80 CRI)	Home Light WX (HL WX)
DESIGNER 700, 3500K (D35)	SP35	Home Light Warm (HL Warm)
ECOLOGIC® (ECO®)	Ecolux (ECO)	ALTO
GRO-LUX®	Gro & Sho/Plant & Aquarium/Terrarium	Agro-Lite (AGRO)
ICETRON®	---	---
OCTRON®	T8 (was Trimline)	TL70/TL80
OCTRON 700 XP™ ECO	SP Ecolux XL T8 Lamps with Starcoat	TL700 PLUS ALTO
OCTRON 800 XP ECO	SPX Ecolux XL T8 Lamps with Starcoat	TL800 PLUS ALTO
OCTRON 800 XPS ECO	---	---
OCTRON 950	---	TL950
PENTRON®	T5 Starcoat	SILHOUETTE™
---	---	QL (similar to ICETRON, but not interchangeable)
SAFELINE®	covRguard	---
SUN STICK®	SUN (Sunshine)	C50
SUPERSAVER® (SS)	Watt-Miser (WM)	Econ-o-Watt (EW)
HO (800mA)	HO (800mA)	HO (800mA)
VHO (1500mA)	1500 (1500mA) & Power Grove	VHO (1500mA) (was SHO)
VHO/LT	T10/1500MA	VHO-0
XP®	XL	Plus
XPS®		Advantage

\* Trademarks or registered trademarks of General Electric Company \*\* Trademarks or registered trademarks of Philips

### FLUORESCENT COLOR CROSS REFERENCE

SYLVANIA	GE	PHILIPS	SYLVANIA	GE	PHILIPS
CW	CW	CW	D41	SP41	Spec 41
CWX		CWX, HL Everywhere		SP65	
D	D	D	D830	SPX30	30U
DX	DX	DX	D835	SPX35	35U
DSGN50	C50	50	D841	SPX41	41U
DSGN50	SGN	C50	D865		
DCW, D41	SP41	HL Cool	730	SP30	730
DCWP	SPX41	U41	735	SP35	735
DWW, D30	KB / 70 CRI, SP30	SPEC30	741	SP41	741
DWWP, D830	KB / 82 CRI, SPX30	HL WX	750	SP50	750
D35	SP35	HL Warm	765	SP65	
GRO/AQ		AGRO	827	SPX27	27
GRO/WS/AQ	PL/AQ		830	SPX30	30, 830
LW	LW	LW	835	SPX35	35, 835
N	N	N	841	SPX41	41, 841
SUN STICK	SUN	C50	850	SPX50	50, 850
WW	WW	WW	865	SPX65	865
D30	SP30	Spec 30	950		950
D35	SP35	Spec 35			

## FLUORESCENT COMPETITIVE GUIDES (continued)

### FLUORESCENT ELECTRICAL INTERCHANGEABILITY

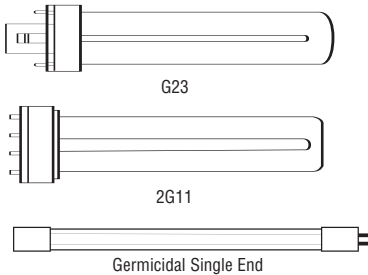
SYLVANIA	GE	PHILIPS
<b>Linear Lamps</b>		
F18T8/CW/K/23	F24*T8/CW/4	F15T8/CW/24
F18T8/CW/K/26	F26*T8/CW/4	F16T8/CW/26
F18T8/CW/K/28	F28*T8/CW/4	F17T8/CW/28
F18T8/CW/K/30	F30*T8/CW/4	F18T8/CW/30
F34CW/SS	F34CW/WM	F34CW/EW
Formerly known as F40CW/SS	F40CW/WM	F40CW/EW
F96T12/CW/SS	F96T12/CW/WM	F96T12/CW/EW
FB40/D41/6	F40/SP41/U/6	FB40/SPEC41/6
FB40/CW/6/SS (new FB34/CW/6/SS)	F40CW/U/6/WM (new F34CW/U/6/WM)	FB40/CW/6/EW (new F34/CW/6/EW)
OCTRON®	T8 (was Trimline)	TL70/TL80
OCTRON 700 Series	T8 SP	TL70
OCTRON 800 Series	T8 SPX	TL80
F017...	F17T8/SP(or SPX)...	F17T8/TL...
F025...	F25T8/SP(or SPX)...	F25T8/TL...
F032...	F32T8/SP(or SPX)...	F32T8/TL...
F032/...XP®	F32T8/XL/SP (or SPX)	F32T8/TL...PLUS
F032/...XPS®/ECO®	---	F32T8/ADV
F030...XP/SS/ECO	F32T8/SP.../IS/WM/ECO	F32T8/ADV8.../EW
F028/8...XP/SS/ECO	---	---
F032/25W/8...XP/SS/ECO	---	F32T8/ADV8.../XEW/ALTO
F040...	F40T8/SP... (or SPX)	F40T8/TL
F072...	---	---
F096...	F96T8/SP... (or SPX)	F96T8/TL...
F096/7...XP/ECO	F96T8/XL.SP...	---
F096/8...XP/ECO	F96T8/XL/SPX...	---
F096/8...XP/SS/ECO	F96T8/SP.../WM	---
---	---	F48T8/TL.../HO
---	---	F60T8/TL.../HO
---	---	F72T8/TL.../HO
F096.../HO/ECO	F96T8/SP (or SPX).../HO	F96T8/TL.../HO
---	F25T12/SP... (for T8 electronic ballasts)	---
FBO16...	---	---
FBO24...	---	---
FBO31...	F31T8/SPX.../U	---
FBO31...XP	---	---
FBO32...	F32T8/SP(or SPX).../U6	FB32T8/TL.../6
FBO32...XP	---	---
FBO31/...XPS/ECO	---	---
FBO32/...XPS/ECO	---	---
FBO32/8...XP/SS/ECO	---	---
FP14/8..	F14/T5/8..	F14T5/8..
FP21/8..	F21/T5/8..	F21T5/8..
FP28/8..	F28/T5/8..	F28T5/8..
FP35/8..	F35/T5/8..	F35T5/8..
FP24/8../HO	F24/T5/8../HO	F24T5/8../HO
FP39/8../HO	F39/T5/8../HO	F39T5/8../HO
FP54/8../HO	F54/T5/8../HO	F54T5/8../HO
FP80/8../HO	F80/T5/8../HO	F80T5/8../HO
---	F40T17/CW/IS	---
---	F96T17/...	---
HO (800mA)	HO (800mA)	HO (800mA)
F96T12/.../HO/COLDTEMP	F96T12/.../HO/CT	F96T12/.../HO-0
VHO (1500mA)	1500 or PG17 (both 1500mA)	VHO (1500mA)
VHO/LT (1500mA)	T10, 1500-0 (both 1500mA)	VHO-0 (1500mA)
<b>Induction Lamps</b>		
ICE 70/8... (ICETRON®)	---	---
ICE 100/8... (ICETRON)	---	---
ICE 150/8... (ICETRON)	---	---
---	EL23/R25/... (Genura™)	---
---	---	QL55W/... (QL)
---	---	QL85W/... (QL)
---	---	QL165W/... (QL)

For a more complete manufacturers' cross reference, please see that section of this catalog or visit the electronic catalog at [www.sylvania.com](http://www.sylvania.com).

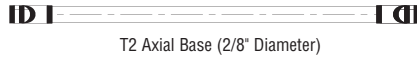
## FLUORESCENT LAMPS

The bulb shape and size of a fluorescent lamp are expressed by means of a code consisting of the letter "T" (which designates that the bulb is "tubular" in shape) followed by a number that expresses the diameter in eighths of an inch. Diameters range from T2 (1/4 inch) to T17 (2 1/8 inch). In nominal overall length, linear fluorescent lamps range from 6 to 96 inches. The nominal length is measured from back of lamp holder to back of lamp holder. For example, the actual overall length of the 40-watt rapid start T12 lamp with a nominal length of 48 inches is 47 3/4 inches. The nominal length given for PENTRON® linear lamps is the closest familiar nominal length. CURVALUME® U-shaped fluorescent lamps are available as OCTRON® T8 lamps with leg spacings of 1 1/8 inches and 6 inches and as rapid start T12 lamps with 6 spacings of 6 inches. The leg spacing is measured from the center of one leg to the center of the other leg. The overall length of the CURVALUME lamps is measured from the face of the bases to the outside of the glass bend. Circline lamps, which are circular in shape, are available as T9 lamps with outside diameters of 6 1/2, 8, 12 and 16 inches as well as PENTRON T5 lamps with outside diameters of 8.85 and 11.77 inches.

### Germicidal Compact Fluorescent



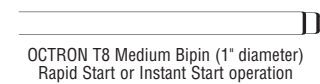
### T2 MINIATURE



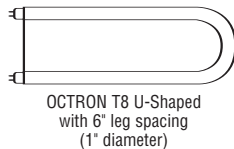
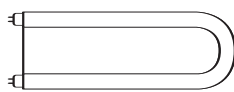
### PREHEAT, RAPID START



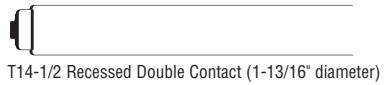
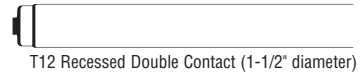
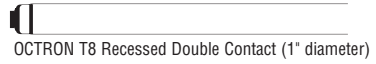
### T8 Medium Bipin (1" diameter)



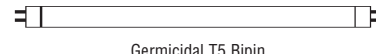
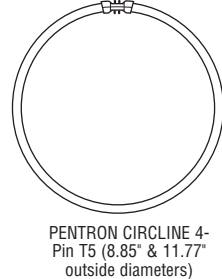
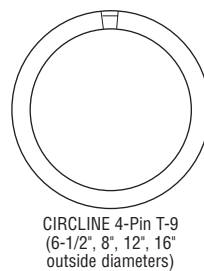
### T12 Medium Bipin (1-1/2" diameter)



### HIGH OUTPUT AND VERY HIGH OUTPUT



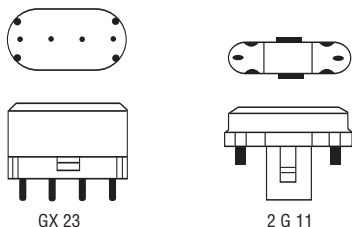
### INSTANT START



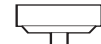
## BASES

For linear Preheat and Rapid Start Lamps, four electrical contacts are required, two at each end of the lamp. This is accomplished in the standard line of lamps by the use of a miniature bipin base for T5 lamps and a medium bipin for T8 and T12 lamps. The OCTRON® T8 medium bipin lamps may also be operated as instant start lamps with the proper wiring and ballasts. When operating OCTRON bipin lamps with instant start ballasts, the two contacts in the lamp holder are shorted together and connected to the single circuit in the ballast. In Circline lamps, the cathodes are connected to a four-pin base located between the junction of the two ends of the lamp. High Output (HO) and Very High Output (VHO) lamps have recessed double contact (RDC) type bases. Slimline Instant Start lamps require only two electrical contacts, one on each lamp end and have single pin bases.

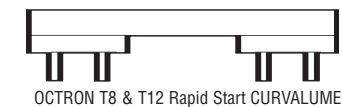
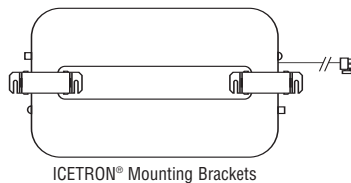
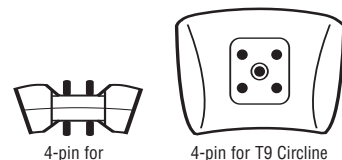
### Germicidal Compact Fluorescent



### SINGLE PIN



### BIPIN



## OCTRON® AND OCTRON® CURVALUME® FLUORESCENT LAMPS

OCTRON® lamps are T8 fluorescent lamps designed to be operated on dedicated magnetic rapid start or electronic instant start or programmed rapid start (also known as programmed start) ballasts. For details on various lamp/ballast system combinations, please refer to the Systems Performance Guide in the "SYLVANIA QUICKTRONIC® Ballast Technology and Specification Guide".

### OCTRON® 800 XPS® Lamps

Nominal Wattage	Bulb	Nominal Length (in)	MOL (in)	Base	Product Number	Ordering Abbreviation	Pkg Qty	Avg Rated Life @3hrs/start (@12hrs/start)	CCT (K)	CRI	Approx Lumens Initial @25°C/77°F	Approx Lumens Mean @25°C/77°F	Symbols & Footnotes
32	T8	48	47.78	Med Bipin	21680	F032/830/XPS/ECO	30	36000 (42000)	3000	85	3100	2945	19,31,33,48, 52,76,94
					21697	F032/835/XPS/ECO	30	36000 (42000)	3500	85	3100	2945	19,31,33,48, 52,76,94
					21681	F032/841/XPS/ECO	30	36000 (42000)	4100	85	3100	2945	19,31,33,48, 52,76,94
					21660	F032/850/XPS/ECO	30	36000 (42000)	5000	80	3000	2850	19,31,33, 48,52,76,94
					21659	F032/865/XPS/ECO	30	36000 (42000)	6500	80	2900	2750	19,31,33, 48,52,76,94

Nominal Wattage	Bulb	Nominal Length (in)	MOL (in)	Base	Product Number	Ordering Abbreviation	Pkg Qty	Avg Rated Life @3hrs/start	CCT (K)	CRI	Approx Lumens Initial @25°C/77°F	Approx Lumens Mean @25°C/77°F	Symbols & Footnotes
17	T8	24	23.78	Med Bipin	22150	F017/830/XPS/ECO	30	30000	3000	85	1400	1330	31,33,48,52, 76,93,94
					22151	F017/835/XPS/ECO	30	30000	3500	85	1400	1330	31,33,48,52, 76,93,94
					22152	F017/841/XPS/ECO	30	30000	4100	85	1400	1330	31,33,48,52, 76,93,94
25	T8	36	35.78	Med Bipin	22153	F025/830/XPS/ECO	30	30000	3000	85	2200	2090	31,33,48,52, 76,93,94
					22154	F025/835/XPS/ECO	30	30000	3500	85	2200	2090	31,33,48,52, 76,93,94
					22155	F025/841/XPS/ECO	30	30000	4100	85	2200	2090	31,33,48,52, 76,93,94

### OCTRON® 800 XP® 4 Foot SUPERSAVER® Lamps

Nominal Wattage	Bulb	Nominal Length (in)	MOL (in)	Base	Product Number	Ordering Abbreviation	Pkg Qty	Avg Rated Life @3hrs/start (@12hrs/start)	CCT (K)	CRI	Approx Lumens Initial @25°C/77°F	Approx Lumens Mean @25°C/77°F	Symbols & Footnotes
25		48	47.78	Med Bipin	22232	F032/25W/830/XP/SS/ECO	30	36000 (42000)	3000	85	2475	2350	9,16,17,18, 20,31,33,76,94
					22233	F032/25W/835/XP/SS/ECO	30	36000 (42000)	3500	85	2475	2350	9,16,17,18, 20,31,33,76,94
					22234	F032/25W/841/XP/SS/ECO	30	36000 (42000)	4100	85	2475	2350	9,16,17,18, 20,31,33,76,94
					22235	F032/25W/850/XP/SS/ECO	30	36000 (42000)	5000	85	2300	2185	9,16,17,18, 20,31,33,76,94
28	T8	48	47.78	Med Bipin	22177	F028/830/XP/SS/ECO	30	36000 (42000)	3000	85	2725	2590	9,16,20,23, 31,33,44,76,94,95
					22178	F028/835/XP/SS/ECO	30	36000 (42000)	3500	85	2725	2590	9,16,20,23, 31,33,44,76,94,95
					22179	F028/841/XP/SS/ECO	30	36000 (42000)	4100	85	2725	2590	9,16,20,23, 31,33,44,76,94,95
					22184	F028/850XP/SS/ECO	30	36000 (42000)	5000	80	2600	2470	9,16,20, 23,31,33,76,94,95



## OCTRON® AND OCTRON® CURVALUME® FLUORESCENT LAMPS

### OCTRON® 800 XP® 4 Foot SUPERSAVER® Lamps

Nominal Wattage	Bulb	Nominal Length (in)	MOL (in)	Base	Product Number	Ordering Abbreviation	Pkg Qty	Avg Rated Life @3hrs/start (@12hrs/start)	CCT (K)	CRI	Approx Lumens Initial @25°C/77°F	Approx Lumens Mean @25°C/77°F	Symbols & Footnotes
30	T8	48	47.78	Med Bipin	22063	<b>F030/830/XP/SS/ECO</b>	30	36000 (42000)	3000	85	2850	2710	31,33,48,95
					22060	<b>F030/835/XP/SS/ECO</b>	30	36000 (42000)	3500	85	2850	2710	31,33,48,95
					22062	<b>F030/841/XP/SS/ECO</b>	30	36000 (42000)	4100	85	2850	2710	31,33,48,95
					22202	<b>F030/850/XP/SS/ECO</b>	30	36000 (42000)	5000	85	2800	2660	31,33,48,95

### OCTRON® 800 XP® Lamps

Nominal Wattage	Bulb	Nominal Length (in)	MOL (in)	Base	Product Number	Ordering Abbreviation	Pkg Qty	Avg Rated Life @3hrs/start (@12hrs/start)	CCT (K)	CRI	Approx Lumens Initial @25°C/77°F	Approx Lumens Mean @25°C/77°F	Symbols & Footnotes
32	T8	48	47.78	Med Bipin	22039	<b>F032/827/XP/ECO</b>	30	36000 (42000)	2700	85	3000	2850	20,31,33,48,52,76,94
					21759	<b>F032/830/XP/ECO</b>	30	36000 (42000)	3000	85	3000	2850	20,31,33,48,52,76,94
					21763	<b>F032/835/XP/ECO</b>	30	36000 (42000)	3500	85	3000	2850	20,31,33,48,52,76,94
					21767	<b>F032/841/XP/ECO</b>	30	36000 (42000)	4100	85	3000	2850	20,31,33,48,52,76,94
					22026	<b>F032/850/XP/ECO</b>	30	36000 (42000)	5000	85	3000	2850	20,31,33,48,52,76,94
					21720	<b>F032/865/XP/ECO</b>	30	36000 (42000)	6500	85	2850	2708	20,31,33,48,52,76,94
					22594	<b>F032/SKYWHITE/XP/ECO</b>	30	36000 (42000)	8000	88	2650	2518	20,31,33,48,52,76,94

Nominal Wattage	Bulb	Nominal Length (in)	MOL (in)	Base	Product Number	Ordering Abbreviation	Pkg Qty	Avg Rated Life @3hrs/start	CCT (K)	CRI	Approx Lumens Initial @25°C/77°F	Approx Lumens Mean @25°C/77°F	Symbols & Footnotes
17	T8	24	23.78	Med Bipin	21587	<b>F017/827/XP/ECO</b>	30	24000	2700	85	1375	1305	31,33,44,48,52,76,87
					21785	<b>F017/830/XP/ECO</b>	30	24000	3000	85	1375	1305	31,33,44,48,52,76,87
					21778	<b>F017/835/XP/ECO</b>	30	24000	3500	85	1375	1305	31,33,44,48,52,76,87
					21907	<b>F017/841/XP/ECO</b>	30	24000	4100	85	1375	1305	31,33,44,48,52,76,87
					22193	<b>F017/850/XP/ECO</b>	30	24000	5000	85	1375	1305	31,33,44,48,52,76,87
					21718	<b>F017/865/XP/ECO</b>	30	24000	6500	85	1250	1188	31,33,44,48,52,76,87
25	T8	36	35.78	Med Bipin	21586	<b>F025/827/XP/ECO</b>	30	24000	2700	85	2175	2065	31,33,44,48,52,76,87
					21910	<b>F025/830/XP/ECO</b>	30	24000	3000	85	2175	2065	31,33,44,48,52,76,87
					21776	<b>F025/835/XP/ECO</b>	30	24000	3500	85	2175	2065	31,33,44,48,52,76,87
					21774	<b>F025/841/XP/ECO</b>	30	24000	4100	85	2175	2065	31,33,44,48,52,76,87

# OCTRON® AND OCTRON® CURVALUME® FLUORESCENT LAMPS

## OCTRON® 800 XP® Lamps

Nominal Wattage	Bulb	Nominal Length (in)	MOL (in)	Base	Product Number	Ordering Abbreviation	Pkg Qty	Avg Rated Life @3hrs/start	CCT (K)	Approx Lumens @25°C/77°F		Symbols & Footnotes	
										Initial	Mean		
25	T8	36	35.78	Med Bipin	22194	F025/850/XP/ECO	30	24000	5000	85	2175	2065	31,33,44,48, 52,76,87
					21719	F025/865/XP/ECO	30	24000	6500	85	2000	1900	31,33,44,48, 52,76,87
40	T8	60	59.61	Med Bipin	21912	F040/830/XP/ECO	30	24000	3000	85	3750	3560	31,33,44,48, 52,76,87
					21911	F040/835/XP/ECO	30	24000	3500	85	3750	3560	31,33,44,48, 52,76,87
					21916	F040/841/XP/ECO	30	24000	4100	85	3750	3560	31,33,44,48, 52,76,87
					21721	F040/865/XP/ECO	30	24000	6500	85	3650	3468	31,33,44,48, 52,76,87

## OCTRON® 700 XP® Lamps

Nominal Wattage	Bulb	Nominal Length (in)	MOL (in)	Base	Product Number	Ordering Abbreviation	Pkg Qty	Avg Rated Life @3hrs/start (@12hrs/start)	CCT (K)	Approx Lumens @25°C/77°F		Symbols & Footnotes	
										Initial	Mean		
32	T8	48	47.78	Med Bipin	21711	F032/730/XP/ECO	30	36000 (42000)	3000	78	2850	2705	31,33,44, 48,52,76,94
					22044	F032/735/XP/ECO	30	36000 (42000)	3500	78	2850	2705	31,33,44, 48,52,76,94
					21712	F032/741/XP/ECO	30	36000 (42000)	4100	78	2850	2705	31,33,44, 48,52,76,94

Nominal Wattage	Bulb	Nominal Length (in)	MOL (in)	Base	Product Number	Ordering Abbreviation	Pkg Qty	Avg Rated Life @3hrs/start	CCT (K)	Approx Lumens @25°C/77°F		Symbols & Footnotes	
										Initial	Mean		
17	T8	24	23.78	Med Bipin	21699	F017/735/XP/ECO	30	24000	3500	78	1325	1255	31,33,44,48, 52,76,87
					21637	F017/741/XP/ECO	30	24000	4100	78	1325	1255	31,33,44,48, 52,76,87
25	T8	36	35.78	Med Bipin	21698	F025/735/XP/ECO	30	24000	3500	78	2050	1945	31,33,44,48, 52,76,87
					21639	F025/741/XP/ECO	30	24000	4100	78	2050	1945	31,33,44,48, 52,76,87

## OCTRON® 800 Lamps

Nominal Wattage	Bulb	Nominal Length (in)	MOL (in)	Base	Product Number	Ordering Abbreviation	Pkg Qty	Avg Rated Life @3hrs/start (@12hrs/start)	CCT (K)	Approx Lumens @25°C/77°F		Symbols & Footnotes	
										Initial	Mean		
32	T8	48	47.78	Med Bipin	21777	F032/830/ECO	30	30000 (35000)	3000	85	2950	2802	21,31,33, 48,52,76,94
					21779	F032/835/ECO	30	30000 (35000)	3500	85	2950	2802	21,31,33, 48,52,76,94
					21781	F032/841/ECO	30	30000 (35000)	4100	85	2950	2802	21,31,33, 48,52,76,94
					22143	F032/850/ECO	30	30000 (35000)	5000	80	2800	2660	21,31,33, 48,52,76,94
17	T8	24	23.78	Med Bipin	22135	F017/830/ECO	30	20000	3000	82	1350	1240	31,33,35,48, 52,76

## OCTRON® AND OCTRON® CURVALUME® FLUORESCENT LAMPS

### OCTRON® 800 Lamps

Nominal Wattage	Bulb	Nominal Length (in)	MOL (in)	Base	Product Number	Ordering Abbreviation	Pkg Qty	Avg Rated Life @3hrs/start	CCT (K)	CRI	Approx Lumens Initial @25°C/77°F	Approx Lumens Mean @25°C/77°F	Symbols & Footnotes
17	T8	24	23.78	Med Bipin	22136	<b>F017/835/ECO</b>	30	20000	3500	82	1350	1240	31,33,35,48, 52,76
					22137	<b>F017/841/ECO</b>	30	20000	4100	82	1350	1240	31,33,35,48, 52,76
25	T8	36	35.78	Med Bipin	22138	<b>F025/830/ECO</b>	30	20000	3000	82	2150	1975	31,33,35,48, 52,76
					22139	<b>F025/835/ECO</b>	30	20000	3500	82	2150	1975	31,33,35,48, 52,76
					22140	<b>F025/841/ECO</b>	30	20000	4100	82	2150	1975	31,33,35,48, 52,76
40	T8	60	59.61	Med Bipin	22144	<b>F040/830/ECO</b>	30	20000	3000	82	3650	3473	31,33,35,48, 52,76
					22145	<b>F040/835/ECO</b>	30	20000	3500	82	3650	3473	31,33,35,48, 52,76
					22146	<b>F040/841/ECO</b>	30	20000	4100	82	3650	3473	31,33,35,48, 52,76

### OCTRON® 700 Lamps

Nominal Wattage	Bulb	Nominal Length (in)	MOL (in)	Base	Product Number	Ordering Abbreviation	Pkg Qty	Avg Rated Life @3hrs/start	CCT (K)	CRI	Approx Lumens Initial @25°C/77°F	Approx Lumens Mean @25°C/77°F	Symbols & Footnotes
32	T8	48	47.78	Med Bipin	21997	<b>F032/730/ECO</b>	30	25000	3000	78	2800	2520	31,33,48, 52,76, 119
					21998	<b>F032/735/ECO</b>	30	25000	3500	78	2800	2520	31,33,48, 52,76, 119
					21678	<b>F032/735/SL</b>	30	25000	3500	78	2716	2444	31,33,52,96, 98,119
					22181	<b>F032/741/ECO/CVP</b>	12	25000	4100	78	2800	2520	31,33,48, 52,76, 119
					21547	<b>F032/741/ECO/SL</b>	30	25000	4100	78	2716	2444	31,33,52, 76,96,98,119
					21999	<b>F032/741/ECO</b>	30	25000	4100	78	2800	2520	31,33,48, 52,76, 119
					22141	<b>F032/750/ECO</b>	30	25000	5000	78	2650	2385	31,33,48, 52,76, 119
					22175	<b>F032/765/ECO</b>	30	25000	6500	78	2700	2430	31,33,48, 52,76, 119
14	T8	18	17.91	Med Bipin	21666	<b>F013/735/ECO</b>	30	20000	3500	75	830	745	31,33,35,48, 52,76
					21667	<b>F013/741/ECO</b>	30	20000	4100	75	830	745	31,33,35,48, 52,76
17	T8	24	23.78	Med Bipin	21918	<b>F017/730/ECO</b>	30	20000	3000	75	1300	1170	31,33,35,48, 52,76
					21769	<b>F017/735/ECO</b>	30	20000	3500	75	1300	1170	31,33,35,48, 52,76
					21770	<b>F017/741/ECO</b>	30	20000	4100	75	1300	1170	31,33,35,48, 52,76
25	T8	36	35.78	Med Bipin	21937	<b>F025/730/ECO</b>	30	20000	3000	75	1950	1755	31,33,35,48, 52,76

FLUORESCENT

**OCTRON® AND OCTRON® CURVALUME® FLUORESCENT LAMPS****OCTRON® 700 Lamps**

Nominal Wattage	Bulb	Nominal Length (in)	MOL (in)	Base	Product Number	Ordering Abbreviation	Pkg Qty	Avg Rated Life @3hrs/start	CCT (K)	Approx Lumens		Symbols & Footnotes	
										Initial	Mean		
25	T8	36	35.78	Med Bipin	21941	F025/735/ECO	30	20000	3500	75	1950	1755	31,33,35,48, 52,76
					21942	F025/741/ECO	30	20000	4100	75	1950	1755	31,33,35,48, 52,76
40	T8	60	59.61	Med Bipin	22102	F040/730/ECO	30	20000	3000	75	3500	3150	31,33,35,48, 52,76
					22103	F040/735/ECO	30	20000	3500	75	3500	3150	31,33,35,48, 52,76
					22104	F040/741/ECO	30	20000	4100	75	3500	3150	31,33,35,48, 52,76

**OCTRON® 800 XP® 8 Foot SUPERSAVER® Lamps**

Nominal Wattage	Bulb	Nominal Length (in)	MOL (in)	Base	Product Number	Ordering Abbreviation	Pkg Qty	Avg Rated Life @3hrs/start	CCT (K)	Approx Lumens		Symbols & Footnotes	
										Initial	Mean		
55	T8	96	94	Single Pin	22100	F096/835/XP/SS/ECO	24	18000	3500	85	5700	5415	7,31,33,76, 85
					22101	F096/841/XP/SS/ECO	24	18000	4100	85	5700	5415	7,31,33,76, 85

**OCTRON® 800 XP® 8 Foot Lamps**

Nominal Wattage	Bulb	Nominal Length (in)	MOL (in)	Base	Product Number	Ordering Abbreviation	Pkg Qty	Avg Rated Life @3hrs/start	CCT (K)	Approx Lumens		Symbols & Footnotes	
										Initial	Mean		
59	T8	96	94	Single Pin	22036	F096/830/XP/ECO	24	18000	3000	85	6100	5795	31,33,44,48, 76,85
					22034	F096/835/XP/ECO	24	18000	3500	85	6100	5795	31,33,44,48, 76,85
					22032	F096/841/XP/ECO	24	18000	4100	85	6100	5795	31,33,44,48, 76,85
					22174	F096/850/XP/ECO	24	18000	5000	85	6100	5795	31,33,44,48, 76,85

**OCTRON® 800 8 Foot Lamps**

Nominal Wattage	Bulb	Nominal Length (in)	MOL (in)	Base	Product Number	Ordering Abbreviation	Pkg Qty	Avg Rated Life @3hrs/start	CCT (K)	Approx Lumens		Symbols & Footnotes	
										Initial	Mean		
59		96	94	Single Pin	22147	F096/830/ECO	24	15000	3000	82	5900	5428	10,31,33, 48,76
					22148	F096/835/ECO	24	15000	3500	82	5900	5428	10,31,33, 48,76
					22149	F096/841/ECO	24	15000	4100	82	5900	5428	10,31,33, 48,76
					22173	F096/850/ECO	24	15000	5000	80	5900	5428	10,31,33, 48,76
86	T8	96	93.91	Recessed DC	22206	F096/835/HO/ECO	24	18000	3500	85	8200	7710	31,33,48,76
					22207	F096/841/HO/ECO	24	18000	4100	85	8200	7710	31,33,48,76

## OCTRON® AND OCTRON® CURVALUME® FLUORESCENT LAMPS

### OCTRON® 700 8 Foot Lamps

Nominal Wattage	Bulb	Nominal Length (in)	MOL (in)	Base	Product Number	Ordering Abbreviation	Pkg Qty	Avg Rated Life @3hrs/start	CCT (K)	CRI	Approx Lumens @25°C/77°F		Symbols & Footnotes
											Initial	Mean	
59	T8	96	94	Single Pin	22030	<b>F096/730/ECO</b>	24	15000	3000	75	5700	5130	☼   31,33,48,76,84
					21737	<b>F096/735/ECO</b>	24	15000	3500	75	5700	5130	☼   31,33,48,76,84
					21736	<b>F096/741/ECO</b>	24	15000	4100	75	5700	5130	☼   31,33,48,76,84
86	T8	96	93.91	Recessed DC	22204	<b>F096/735/H0/ECO</b>	24	18000	3500	78	8000	7520	☼   31,33,48,76
					22205	<b>F096/741/H0/ECO</b>	24	18000	4100	78	8000	7520	☼   31,33,48,76

### OCTRON® 800 XP® SUPERSAVER® CURVALUME® U-SHAPED Lamps - 1 5/8" Leg Spacing

The OCTRON® CURVALUME® lamps are made to the same color standards and may be used in conjunction with other SYLVANIA OCTRON lamps to meet the needs of lighting installations where OCTRON T8 systems are used. Since CURVALUME and linear OCTRON lamps of the same/similar wattages operate on the same ballasts, the types of ballasts used in an installation can be minimized. When OCTRON FBO31 lamps are used in 2X2 luminaires, the 2X2 luminaire can deliver light levels similar to 2X4 luminaires with the same number of linear OCTRON lamps. The nominal length of the CURVALUME lamp is measured from the base face to the outside of the glass bend.

Nominal Wattage	Bulb	Nominal Length (in)	MOL (in)	Base	Product Number	Ordering Abbreviation	Pkg Qty	Avg Rated Life @3hrs/start	CCT (K)	CRI	Approx Lumens @25°C/77°F		Symbols & Footnotes
											Initial	Mean	
29	T8	22.5	22.6	Med Bipin	22195	<b>FBO29/830XP/SS/ECO</b>	15	24000	3000	85	2775	2636	31,33,44,54,76,87,95
					22196	<b>FBO29/835XP/SS/ECO</b>	15	24000	3500	85	2775	2636	31,33,44,54,76,87,95
					22197	<b>FBO29/841XP/SS/ECO</b>	15	24000	4100	85	2775	2636	31,33,44,54,76,87,95

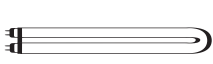
### OCTRON® 800 XP® CURVALUME® U-SHAPED Lamps - 1 5/8" Leg Spacing

Nominal Wattage	Bulb	Nominal Length (in)	MOL (in)	Base	Product Number	Ordering Abbreviation	Pkg Qty	Avg Rated Life @3hrs/start	CCT (K)	CRI	Approx Lumens @25°C/77°F		Symbols & Footnotes
											Initial	Mean	
31	T8	22.5	22.6	Med Bipin	21693	<b>FBO31/830/XP/ECO</b>	15	24000	3000	85	2775	2636	☼   31,33,44,48,52,54,55,76,87
					21695	<b>FBO31/835/XP/ECO</b>	15	24000	3500	85	2775	2636	☼   31,33,44,48,52,54,55,76,87
					21696	<b>FBO31/841/XP/ECO</b>	15	24000	4100	85	2775	2636	☼   31,33,44,48,52,54,55,76,87

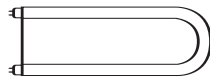
### OCTRON® CURVALUME® U-SHAPED Lamps - 1 5/8" Leg Spacing

Nominal Wattage	Bulb	Nominal Length (in)	MOL (in)	Base	Product Number	Ordering Abbreviation	Pkg Qty	Avg Rated Life @3hrs/start	CCT (K)	CRI	Approx Lumens @25°C/77°F		Symbols & Footnotes
											Initial	Mean	
31	T8	22.5	22.6	Med Bipin	21877	<b>FBO31/830</b>	15	20000	3000	82	2725	2507	31,33,35,48,52,54,55
					21878	<b>FBO31/835</b>	15	20000	3500	82	2725	2507	31,33,35,48,52,54,55
					21879	<b>FBO31/841</b>	15	20000	4100	82	2725	2507	31,33,35,48,52,54,55
16	T8	10.5	10.60	Med Bipin	21834	<b>FBO16/830</b>	15	20000	3000	82	1125	1035	31,33,35,48,52,54,55
					21835	<b>FBO16/835</b>	15	20000	3500	82	1125	1035	31,33,35,48,52,54,55

FLUORESCENT



T8 U-Shaped 1-5/8"



T8 U-Shaped 6"

**OCTRON® AND OCTRON® CURVALUME® FLUORESCENT LAMPS****OCTRON® CURVALUME® U-SHAPED Lamps - 1 5/8" Leg Spacing**

Nominal Wattage	Bulb	Nominal Length (in)	MOL (in)	Base	Product Number	Ordering Abbreviation	Pkg Qty	Avg Rated Life @3hrs/start	CCT (K)	CRI	Approx Lumens		Symbols & Footnotes
											Initial	Mean	
16	T8	10.5	10.60	Med Bipin	21836	<b>FB016/841</b>	15	20000	4100	82	1125	1035	31,33,35,48,52,54,55
24	T8	16.5	16.6	Med Bipin	21874	<b>FB024/830</b>	15	20000	3000	82	1925	1771	31,33,35,48,52,54,55
					21875	<b>FB024/835</b>	15	20000	3500	82	1925	1771	31,33,35,48,52,54,55
					21876	<b>FB024/841</b>	15	20000	4100	82	1925	1771	31,33,35,48,52,54,55

**OCTRON® 800 XP® SUPERSAVER® CURVALUME® U-SHAPED Lamps - 6" Leg Spacing**

Nominal Wattage	Bulb	Nominal Length (in)	MOL (in)	Base	Product Number	Ordering Abbreviation	Pkg Qty	Avg Rated Life @3hrs/start	CCT (K)	CRI	Approx Lumens		Symbols & Footnotes
											Initial	Mean	
30	T8	22.5	22.6	Med Bipin	22170	<b>FB030/830XP/6/SS/ECO</b>	16	24000	3000	85	2800	2660	31,33,44,54,76,87,95
					22171	<b>FB030/835XP/6/SS/ECO</b>	16	24000	3500	85	2800	2660	31,33,44,54,76,87,95
					22172	<b>FB030/841XP/6/SS/ECO</b>	16	24000	4100	85	2800	2660	31,33,44,54,76,87,95

**OCTRON® 800 XP® CURVALUME® U-SHAPED Lamps - 6" Leg Spacing**

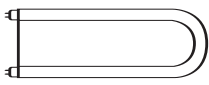
Nominal Wattage	Bulb	Nominal Length (in)	MOL (in)	Base	Product Number	Ordering Abbreviation	Pkg Qty	Avg Rated Life @3hrs/start	CCT (K)	CRI	Approx Lumens		Symbols & Footnotes
											Initial	Mean	
32	T8	22.5	22.6	Med Bipin	22054	<b>FB032/830XP/6/ECO</b>	16	24000	3000	85	2900	2755	31,33,44,48,52,54,76,87
					22055	<b>FB032/835XP/6/ECO</b>	16	24000	3500	85	2900	2755	31,33,44,48,52,54,76,87
					22057	<b>FB032/841XP/6/ECO</b>	16	24000	4100	85	2900	2755	31,33,44,48,52,54,76,87

**OCTRON® 800 CURVALUME® U-SHAPED Lamps - 6" Leg Spacing**

Nominal Wattage	Bulb	Nominal Length (in)	MOL (in)	Base	Product Number	Ordering Abbreviation	Pkg Qty	Avg Rated Life @3hrs/start	CCT (K)	CRI	Approx Lumens		Symbols & Footnotes
											Initial	Mean	
32		22.5	22.6	Med Bipin	21663	<b>FB032/830/6/ECO</b>	16	20000	3000	82	2850	2622	31,33,35,48,52,54,76
					21670	<b>FB032/835/6/ECO</b>	16	20000	3500	82	2850	2622	31,33,35,48,52,54,76
					21671	<b>FB032/841/6/ECO</b>	16	20000	4100	82	2850	2622	31,33,35,48,52,54,76

**OCTRON® 700 CURVALUME® U-SHAPED Lamps - 6" Leg Spacing**

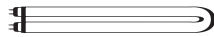
Nominal Wattage	Bulb	Nominal Length (in)	MOL (in)	Base	Product Number	Ordering Abbreviation	Pkg Qty	Avg Rated Life @3hrs/start	CCT (K)	CRI	Approx Lumens		Symbols & Footnotes
											Initial	Mean	
32		22.5	22.6	Med Bipin	22046	<b>FB032/730/6/ECO</b>	16	20000	3000	75	2750	2475	31,33,35,48,52,54,76
					22051	<b>FB032/735/6/ECO</b>	16	20000	3500	75	2750	2475	31,33,35,48,52,54,76



T8 U-Shaped 6"



T8 Med Bipin



T8 U-Shaped 1-5/8"

**OCTRON® AND OCTRON® CURVALUME® FLUORESCENT LAMPS****OCTRON® 700 CURVALUME® U-SHAPED Lamps - 6" Leg Spacing**

Nominal Wattage	Bulb	Nominal Length (in)	MOL (in)	Base	Product Number	Ordering Abbreviation	Pkg Qty	Avg Rated Life @3hrs/start	CCT (K)	CRI	Approx Lumens		Symbols & Footnotes
											Initial @25°C/77°F	Mean @25°C/77°F	
32	T8	22.5	22.6	Med Bipin	22052	<b>FB032/741/6/ECO</b>	16	20000	4100	75	2750	2475	31,33,35,48,52,54,76
					22053	<b>FB032/750/6/ECO</b>	16	20000	5000	75	2625	2363	31,33,35,48,52,54,76

**OCTRON® 5000K And 6500K for Displays, Signage and Backlighting**

Nominal Wattage	Bulb	Nominal Length (in)	MOL (in)	Base	Product Number	Ordering Abbreviation	Pkg Qty	Avg Rated Life @3hrs/start	CCT (K)	CRI	Approx Lumens		Symbols & Footnotes
											Initial @25°C/77°F	Mean @25°C/77°F	
14	T8	18	17.91	Med Bipin	21731	<b>F013/865XP/ECO</b>	30	24000	6500	85	850	805	31,33,44,48,52,76,87
15	T8	20	19.78	Med Bipin	21868	<b>F014/950/20in</b>	30	20000	5000	90	750	638	31,33,35,48,52
					21716	<b>F014/865/XP/ECO</b>	30	24000	6500	85	1000	950	31,33,44,48,52,76,87
16	T8	10.5	10.60	Med Bipin	21726	<b>F016/865XP</b>	15	24000	6500	85	1125	1069	31,33,44,48,52,54,55,87
17	T8	24	23.78	Med Bipin	21871	<b>F017/950/24in</b>	30	20000	5000	90	800	680	31,33,35,48,52
					21718	<b>F017/865/XP/ECO</b>	30	24000	6500	85	1250	1188	31,33,44,48,52,76,87
21	T8	30	29.78	Med Bipin	21869	<b>F021/950/30in</b>	30	20000	5000	90	1000	850	31,33,35,48,52
					21730	<b>F021/865/XP/ECO</b>	30	24000	6500	85	1600	1520	31,33,44,48,52,76,87
25	T8	36	35.78	Med Bipin	21872	<b>F025/950/36in</b>	30	20000	5000	90	1250	1063	31,33,35,48,52
					21719	<b>F025/865/XP/ECO</b>	30	24000	6500	85	2000	1900	31,33,44,48,52,76,87
28	T8	40	39.78	Med Bipin	21870	<b>F028/950/40in</b>	30	20000	5000	90	1400	1190	31,33,35,48,52
32	T8	48	47.78	Med Bipin	21880	<b>F032/950/48in</b>	30	25000	5000	90	1800	1530	31,33,48,52
					21720	<b>F032/865/XP/ECO</b>	30	36000 ( )	6500	85	2850	2708	20,31,33,48,52,76,94
40	T8	60	59.61	Med Bipin	21873	<b>F040/950/60in</b>	30	20000	5000	90	2200	1870	31,33,35,48,52
					21721	<b>F040/865/XP/ECO</b>	30	24000	6500	85	3650	3468	31,33,44,48,52,76,87

**OCTRON® Specialty**

Nominal Wattage	Bulb	Nominal Length (in)	MOL (in)	Base	Product Number	Ordering Abbreviation	Pkg Qty	Avg Rated Life @3hrs/start	CCT (K)	CRI	Approx Lumens		Symbols & Footnotes
											Initial @25°C/77°F	Mean @25°C/77°F	
32	T8	48	47.78	Med Bipin	21961	<b>F032/GOLD</b>	10	25000			1700	1530	31,33,35,43,48,52



## PENTRON® T5 FLUORESCENT LAMPS

PENTRON® T5 lamps are designed to operate on dedicated electronic programmed rapid start (also known as programmed start) ballasts only. These lamps are globally standardized and are designed to operate with their peak light output at 35°C (95°F) ambient temperature. For comparison purposes and to accommodate existing lamp measurement standards, ratings are given at both 25°C (77°F) and 35°C (95°F). The new lamp dimensions allow for innovative fixture designs and improved fixture performance

### PENTRON® High Performance T5 Lamps

Nominal Wattage	Bulb	Nominal Length (in)	MOL (in)	Base	Product Number	Ordering Abbreviation	Pkg Qty	Avg Rated Life @3hrs/start (@12hrs/start)	CCT (K)	CRI	Approx Lumens		Symbols & Footnotes
											Initial @25°C/77°F	Mean @35°C/95°F	
28	T5	48	45.8	Mini Bipin	20868	FP28/830/ECO	40	20000	3000	85	2600 2900	2418 2697	31,33,38,48,74,76
					20901	FP28/835/ECO	40	20000	3500	85	2600 2900	2418 2697	31,33,38,48,74,76
					20902	FP28/841/ECO	40	20000	4100	85	2600 2900	2418 2697	31,33,38,48,74,76
					22203	FP28/850/ECO	40	20000	5000	85	2545 2840	2367 2641	31,33,38,48,74,76
					20990	FP28/865/ECO	40	20000	6500	85	2400 2750	2232 2558	31,33,38,48,74,76
					20977	FP28RED 40/CS 1/SKU	40	20000			2100		15,31,33,38,48,74
					20978	FP28GREEN 40/CS 1/SKU	40	20000			3500		15,31,33,38,48,74
					20986	FP28BLUE 40/CS 1/SKU	40	20000			700		15,31,33,38,48,74
14	T5	24	22.2	Mini Bipin	20907	FP14/830/ECO	40	20000	3000	85	1200 1350	1116 1256	31,33,38,48,74,76
					20908	FP14/835/ECO	40	20000	3500	85	1200 1350	1116 1256	31,33,38,48,74,76
					20914	FP14/841/ECO	40	20000	4100	85	1200 1350	1116 1256	31,33,38,48,74,76
					20988	FP14/865/ECO	40	20000	6500	85	1100 1300	1045 1209	31,33,38,48,74,76
21	T5	36	34	Mini Bipin	20919	FP21/830/ECO	40	20000	3000	85	1900 2100	1767 1953	31,33,38,48,74,76
					20921	FP21/835/ECO	40	20000	3500	85	1900 2100	1767 1953	31,33,38,48,74,76
					20924	FP21/841/ECO	40	20000	4100	85	1900 2100	1767 1953	31,33,38,48,74,76
					20989	FP21/865/ECO	40	20000	6500	85	1750 2000	1662 1860	31,33,38,48,74,76
35	T5	60	57.6	Mini Bipin	20925	FP35/830/ECO	40	20000	3000	85	3300 3650	3069 3394	31,33,38,48,74,76
					20926	FP35/835/ECO	40	20000	3500	85	3300 3650	3069 3394	31,33,38,48,74,76
					20927	FP35/841/ECO	40	20000	4100	85	3300 3650	3069 3394	31,33,38,48,74,76

### PENTRON® PREMIER™ High Performance T5 Lamps

Nominal Wattage	Bulb	Nominal Length (in)	MOL (in)	Base	Product Number	Ordering Abbreviation	Pkg Qty	Avg Rated Life @3hrs/start (@12hrs/start)	CCT (K)	CRI	Approx Lumens		Symbols & Footnotes
											Initial @25°C/77°F	Mean @35°C/95°F	
28	T5	48	45.8	Mini Bipin	20948	FP28/830PM/ECO	40	20000	3000	85	2730 3050	2594 2898	31,33,38,48,74,76
					20943	FP28/835PM/ECO	40	20000	3500	85	2730 3050	2594 2898	31,33,38,48,74,76
					20944	FP28/841PM/ECO	40	20000	4100	85	2730 3050	2594 2898	31,33,38,48,74,76

## PENTRON® T5 FLUORESCENT LAMPS

### PENTRON® High Output, High Performance T5 Lamps

Nominal Wattage	Bulb	Nominal Length (in)	MOL (in)	Base	Product Number	Ordering Abbreviation	Pkg Qty	Avg Rated Life @3hrs/start (@12hrs/start)	CCT (K)	CRI	Approx Lumens		Symbols & Footnotes
											Initial @25°C/77°F	Mean @35°C/95°F	
54	T5	48	45.8	Mini Bipin	20903	FP54/830/HO/ECO	40	25000 (35000)	3000	85	4450	4138	31,33,38,48, 74,76
					20904	FP54/835/HO/ECO	40	25000 (35000)	3500	85	4450	4138	31,33,38,48, 74,76
					21020	FP54/835/HO/ECO/SL	40	25000 (35000)	3500	85	4316	4014	31,33,38,48, 74,76,96,98
					20906	FP54/841/HO/ECO	40	25000 (35000)	4100	85	4450	4138	31,33,38,48, 74,76
					21021	FP54/841/HO/ECO/SL	40	25000 (35000)	4100	85	4316	4014	31,33,48,74, 76,96,98
					20949	FP54/850/HO/ECO	40	25000 (35000)	5000	85	4375	4069	31,33,38,48, 74,76
					21022	FP54/850/HO/ECO/SL	40	25000 (35000)	5000	85	4243	3946	31,33,48,74, 76,96,98
					20862	FP54/865/HO/ECO	40	25000 (35000)	6500	85	4050	3766	31,33,38,48, 74,76
					20997	FP54/RED/HO	40	20000				3300	15,31,33,38,48,74
					20998	FP54/GREEN/HO	40	20000				5550	15,31,33,38,48,74
					20999	FP54/BLUE/HO	40	20000				1150	15,31,33,38,48,74
					24	T5	24	22.2	Mini Bipin	20928	FP24/830/HO/ECO	40	20000
20929	FP24/835/HO/ECO	40	20000	3500						85	1750	1627	31,33,38,48, 74,76
20931	FP24/841/HO/ECO	40	20000	4100						85	1750	1627	31,33,38,48, 74,76
39	T5	36	34	Mini Bipin	20932	FP39/830/HO/ECO	40	20000	3000	85	3100	2883	31,33,38,48, 74,76
					20933	FP39/835/HO/ECO	40	20000	3500	85	3101	2883	31,33,38,48, 74,76
					20934	FP39/841/HO/ECO	40	20000	4100	85	3102	2883	31,33,38,48, 74,76
80	T5	60	57.6	Mini Bipin	20935	FP80/830/HO/ECO	40	20000	3000	85	6150	5719	31,33,38,48, 74,76
					20936	FP80/835/HO/ECO	40	20000	3500	85	6151	5720	31,33,38,48, 74,76
					20937	FP80/841/HO/ECO	40	20000	4100	85	6152	5721	31,33,38,48, 74,76

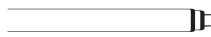
### PENTRON® High Output, Wide Temperature Range T5 Lamps

Nominal Wattage	Bulb	Nominal Length (in)	MOL (in)	Base	Product Number	Ordering Abbreviation	Pkg Qty	Avg Rated Life @3hrs/start (@12hrs/start)	CCT (K)	CRI	Approx Lumens		Symbols & Footnotes
											Initial @25°C/77°F	Mean @35°C/95°F	
54	T5	48	45.8	Mini Bipin	21042	FP54/835/C/HO/ECO	40	25000 (35000)	3500	85	4900	4655	31,33,38,48, 74,76
					21043	FP54/841/C/HO/ECO	40	25000 (35000)	4100	85	4900	4655	31,33,38,48, 74,76
					21044	FP54/850/C/HO/ECO	40	25000 (35000)	5000	85	4800	4560	31,33,38,48, 74,76

FLUORESCENT



Circline 4-Pin T5



T12 Med Bipin

## PENTRON® T5 FLUORESCENT LAMPS

### PENTRON® Circline T5 Lamps

Nominal Wattage	Bulb	Outside Diameter (in)		Base	Product Number	Ordering Abbreviation	Pkg Qty	Avg Rated Life @3hrs/start (@12hrs/start)	CCT (K)	CRI	Approx Lumens @25°C/77°F		Symbols & Footnotes
											Initial	Mean	
22	T5	8.66 - 9.06		2GX13	20702	<b>FPC22/830</b>	12	12000	3000	82	1800	1585	31,33,38,48,74
					20712	<b>FPC22/835</b>	12	12000	3500	82	1800	1585	31,33,38,48,74
					20715	<b>FPC22/841</b>	12	12000	4100	82	1800	1585	31,33,38,48,74
40	T5	11.54 - 12.01		2GX13	20731	<b>FPC40/830</b>	12	12000	3000	82	3200	2815	31,33,38,48,74
					20732	<b>FPC40/835</b>	12	12000	3500	82	3200	2815	31,33,38,48,74
					20733	<b>FPC40/841</b>	12	12000	4100	82	3200	2815	31,33,38,48,74
55	T5	11.54 - 12.01		2GX13	20741	<b>FPC55/830/HO</b>	12	12000	3000	82	4000	3520	31,33,38,48,74
					20750	<b>FPC55/835/HO</b>	12	12000	3500	82	4000	3520	31,33,38,48,74
					20751	<b>FPC55/841/HO</b>	12	12000	4100	82	4000	3520	31,33,38,48,74

### RAPID START LAMPS

Rapid Start lamps, 3-foot and 4-foot in length, are typically designated by their wattage: e.g. F40 = Fluorescent 40W. Therefore lamps previously designated as F30T12/RS/SS, F40/SS and FB40/SS energy saving types will now be designated as F25T12/RS/SS, F34/SS and FB34/SS, respectively to comply with standard lamp designation nomenclature for these families of lamps.

### 3' SUPERSAVER® Rapid Start Lamps

Nominal Wattage	Bulb	Nominal Length (in)		Base	Product Number	Ordering Abbreviation	Pkg Qty	Avg Rated Life @3hrs/start	CCT (K)	CRI	Approx Lumens @25°C/77°F		Symbols & Footnotes
			MOL (in)								Initial	Mean	
25	T12	36		Med Bipin	23473	<b>F25T12/WW/RS/SS</b> <i>formerly F30T12/WW/RS/SS</i>	30	18000	3000	52	1975	1679	22,31,33
					23485	<b>F25T12/D35/RS/SS</b> <i>formerly F30T12/D35/RS/SS</i>	30	18000	3500	70	2050	1804	22,31,33
					23472	<b>F25T12/CW/RS/SS</b> <i>formerly F30T12/CW/RS/SS</i>	30	18000	4200	60	1925	1636	22,31,33

### 3' Standard Rapid Start Lamps

Nominal Wattage	Bulb	Nominal Length (in)		Base	Product Number	Ordering Abbreviation	Pkg Qty	Avg Rated Life @3hrs/start	CCT (K)	CRI	Approx Lumens @25°C/77°F		Symbols & Footnotes
			MOL (in)								Initial	Mean	
30	T12	36		Med Bipin	23490	<b>F30T12/SW/RP</b>	6	18000	3000	52	2275	1934	30,31,33,48
					23482	<b>F30T12/WW/RS</b>	30	18000	3000	52	2275	1934	30,31,33,48
					23474	<b>F30T12/D830/RS</b>	30	18000	3000	80	2290	2061	30,31,33,48
					23484	<b>F30T12/D35/RS</b>	30	18000	3500	70	2250	1980	30,31,33,48
					23139	<b>F30T12/D835/RS</b>	30	18000	3500	80	2290	2061	30,31,33,48
					23493	<b>F30T12/CW/RP</b>	6	18000	4200	60	2200	1870	30,31,33,48
					23476	<b>F30T12/CW/RS</b>	30	18000	4200	60	2200	1870	30,31,33,48
					23487	<b>F30T12/CW/RS/UPC</b>	30	18000	4200	60	2200	1870	30,31,33,48
					23478	<b>F30T12/D/RS</b>	30	18000	6500	76	1900	1615	30,31,33,48

### 4' SUPERSAVER® Rapid Start Lamps

Nominal Wattage	Bulb	Nominal Length (in)		Base	Product Number	Ordering Abbreviation	Pkg Qty	Avg Rated Life @3hrs/start	CCT (K)	CRI	Approx Lumens @25°C/77°F		Symbols & Footnotes
			MOL (in)								Initial	Mean	
34	T12	48		Med Bipin	24538	<b>F34WW/SS/ECO</b> <i>formerly F40WW/SS/ECO</i>	30	20000	3000	52	2750	2365	2,24,30,31,33,56,76
					24535	<b>F34/D30/SS/ECO</b> <i>formerly F40/D30/SS/ECO</i>	30	20000	3000	70	2800	2520	2,24,30,31,33,56,76

## RAPID START LAMPS

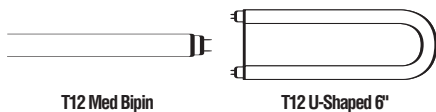
### 4' SUPERSAVER® Rapid Start Lamps

Nominal Wattage	Bulb	Nominal Length (in)	MOL (in)	Base	Product Number	Ordering Abbreviation	Pkg Qty	Avg Rated Life @3hrs/start	CCT (K)	CRI	Approx Lumens @25°C/77°F		Symbols & Footnotes
											Initial	Mean	
34	T12	48	47.78	Med Bipin	24589	<b>F34/D830/SS</b> <i>formerly F40/D830/SS</i>	30	20000	3000	80	2900	2610	☉ CR1 2,24,30,31,33,56
					24544	<b>F34/D830/SS/ECO</b> <i>formerly F40/D830/SS/ECO</i>	30	20000	3000	80	2900	2610	☉ ☀ CR1 2,24,30,31,33,56,76
					24591	<b>F34W/SS</b> <i>formerly F40W/SS</i>	30	20000	3450	57	2750	2365	☉ 2,24,30,31,33,56
					24585	<b>F34/D35/SS</b> <i>formerly F40/D35/SS</i>	30	20000	3500	70	2800	2520	☉ CR1 2,24,30,31,33,56
					24522	<b>F34/D35/SS/CVP</b> <i>formerly F40/D35/SS/CVP</i>	10	20000	3500	70	2800	2520	☉ CR1 2,24,30,31,33,56
					24540	<b>F34/D35/SS/ECO</b> <i>formerly F40/D35/SS/ECO</i>	30	20000	3500	70	2800	2520	☉ ☀ CR1 2,24,30,31,33,56,76
					24547	<b>F34/D835/SS/ECO</b> <i>formerly F40/D835/SS/ECO</i>	30	20000	3500	80	2900	2610	☉ ☀ CR1 2,24,30,31,33,56,76
					24542	<b>F34/D41/SS/ECO</b> <i>formerly F40/D41/SS/ECO</i>	30	20000	4100	70	2800	2520	☉ ☀ CR1 2,24,30,31,33,56,76
					24554	<b>F34/D841/SS/ECO</b> <i>formerly F40/D841/SS/ECO</i>	30	20000	4100	80	2900	2610	☉ ☀ CR1 2,24,30,31,33,56,76
					24588	<b>F34CW/SS</b> <i>formerly F40CW/SS</i>	30	20000	4100	87	1925	1656	☉ CR1 2,24,30,31,33,56
					24566	<b>F34LW/SS/ECO</b> <i>formerly F40LW/SS/ECO</i>	30	20000	4150	48	2825	2430	☉ ☀ 2,24,30,31,33,56,76
					24590	<b>F34LW/SS</b> <i>formerly F40LW/SS</i>	30	20000	4150	48	2825	2430	☉ 2,24,30,31,33,56
					24516	<b>F34CW/SS/10</b> <i>formerly F40CW/SS/10</i>	10	20000	4200	60	2650	2279	☉ 2,24,30,31,33,56
					24524	<b>F34CW/SS/CVP</b> <i>formerly F40/CW/SS/CVP</i>	10	20000	4200	60	2650	2279	☉ 2,24,30,31,33,56
					24396	<b>F34CW/SS/SL</b> <i>formerly F40CW/SS/SL</i>	30	20000	4200	60	2570	2313	☉ 2,24,30,31,33,96,98
					24596	<b>F34CW/SS/ECO</b> <i>formerly F40CW/SS/ECO</i>	30	20000	4200	60	2650	2279	☉ ☀ 2,24,30,31,33,56,76
					24632	<b>F34CW/SS/ECO/CVP</b> <i>formerly F40/CW/SS/ECO/CVP</i>	10	20000	4200	60	2650	2279	☉ ☀ 2,24,30,31,33,56,76
					24642	<b>F34CW/SS/ECO/CVP30</b> <i>formerly F40CW/SS/ECO/CVP30</i>	30	20000	4200	60	2650	2279	☉ ☀ 2,24,30,31,33,56,76
					24633	<b>F34CW/SS/ECO/RP</b> <i>formerly F40/CW/SS/ECO/RP</i>	30	20000	4200	60	2650	2279	☉ ☀ 2,24,30,31,33,48,56,76
					24599	<b>F34/DX/SS</b> <i>formerly F40/DX/SS</i>	30	20000	6500	88	1930	1565	☉ CR1 2,24,30,31,33,56
24706	<b>F34/D865/SS</b> <i>formerly F40/D865/SS</i>	30	20000	6500	80	2650	2385	☉ CR1 2,24,30,31,33,56					

### 4' Standard Rapid Start Lamps

Nominal Wattage	Bulb	Nominal Length (in)	MOL (in)	Base	Product Number	Ordering Abbreviation	Pkg Qty	Avg Rated Life @3hrs/start	CCT (K)	CRI	Approx Lumens @25°C/77°F		Symbols & Footnotes
											Initial	Mean	
40	T12	48	47.78	Med Bipin	24521	<b>F40/D30/ECO</b>	30	20000	3000	70	3200	2880	☉ ☀ CR1 2,30,31,33,48,56,64,76

FULL RANGE



T12 Med Bipin

T12 U-Shaped 6"

## RAPID START LAMPS

### 4' Standard Rapid Start Lamps

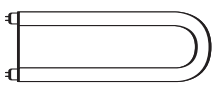
Nominal Wattage	Bulb	Nominal Length (in)	MOL (in)	Base	Product Number	Ordering Abbreviation	Pkg Qty	Avg Rated Life @3hrs/start	CCT (K)	Approx Lumens		Symbols & Footnotes	
										Initial	Mean @25°C/77°F		
40	T12	48	47.78	Med Bipin	24543	<b>F40/D830/ECO</b>	30	20000	3000	80	3300	2970	☼   2,30,31,33,48,56,64,76
					24537	<b>F40/D35/ECO</b>	30	20000	3500	70	3200	2880	☼   2,30,31,33,48,56,64,76
					24546	<b>F40/D835/ECO</b>	30	20000	3500	80	3300	2970	☼   2,30,31,33,48,56,64,76
					24438	<b>F40N</b>	30	20000	3600	86	2100	1806	2,30,31,33,48,56,64
					24442	<b>F40CWX 10/CS</b>	10	20000	4100	87	2150	1849	2,30,31,33,48,56,64
					24441	<b>F40CWX</b>	30	20000	4100	87	2150	1849	2,30,31,33,48,56,64
					24541	<b>F40/D41/ECO</b>	30	20000	4100	70	3200	2880	☼   2,30,31,33,48,56,64,76
					24553	<b>F40/D841/ECO</b>	30	20000	4100	80	3300	2970	☼   2,30,31,33,48,56,64,76
					24584	<b>F40/D41</b>	30	20000	4100	70	3200	2880	☼  2,30,31,33,48,56,64
					24683	<b>F40DSGN50</b>	30	20000	5000	90	2200	1892	2,30,31,33,48,56,64
					24477	<b>F40/DX</b>	30	20000	6500	88	2180	1770	2,30,31,33,48,56,64
					24570	<b>F40/D865</b>	30	20000	6500	80	3000	2700	☼  2,30,31,33,48,56,64
					24673	<b>F40/GO</b>	10	20000			1980		2,30,31,33,48,56,64

### CURVALUME® SUPERSAVER® Rapid Start Lamps – U-Shaped, 6" Leg Spacing

Nominal Wattage	Bulb	Nominal Length (in)	MOL (in)	Base	Product Number	Ordering Abbreviation	Pkg Qty	Avg Rated Life @3hrs/start	CCT (K)	Approx Lumens		Symbols & Footnotes	
										Initial	Mean @25°C/77°F		
34	T12	22.5	22.6	Med Bipin	24062	<b>FB34/WW/6/SS/UPC</b> <i>formerly FB40/WW/6/SS</i>	12	18000	3000	52	2650	2279	☼ 24,30,31,33
					24052	<b>FB34/WW/6/SS/ECO</b> <i>formerly FB40/WW/6/SS/ECO</i>	12	18000	3000	52	2650	2279	☼  24,30,31,33,76
					24065	<b>FB34/D35/6/SS</b> <i>formerly FB40/D35/SS</i>	12	18000	3500	70	2730	2457	☼  24,30,31,33
					24059	<b>FB34/CW/6/SS/UPC</b> <i>formerly FB40/CW/SS/6</i>	12	18000	4200	60	2600	2236	☼ 24,30,31,33
					24054	<b>FB34/CW/6/SS/ECO</b> <i>formerly FB40/CW/6/SS/ECO</i>	12	18000	4200	60	2600	2236	☼  24,30,31,33,76

### CURVALUME® Standard Rapid Start Lamps – U-Shaped, 6" Leg Spacing

Nominal Wattage	Bulb	Nominal Length (in)	MOL (in)	Base	Product Number	Ordering Abbreviation	Pkg Qty	Avg Rated Life @3hrs/start	CCT (K)	Approx Lumens		Symbols & Footnotes	
										Initial	Mean @25°C/77°F		
40	T12	22.5	22.6	Med Bipin	24080	<b>FB40/D30/6</b>	12	18000	3000	70	3050	2745	☼  30,31,33,48
					24017	<b>FB40/D830/6</b>	12	18000	3000	80	3200	2880	☼  30,31,33,48
					24081	<b>FB40/D35/6</b>	12	18000	3500	70	3050	2745	☼  30,31,33,48
					24004	<b>FB40/CWX/6</b>	12	18000	4100	87	2100	1806	30,31,33,48



T12 U-Shaped 6"



Circline 4-Pin T9



T12 RDC

## RAPID START LAMPS

### CURVALUME® Standard Rapid Start Lamps – U-Shaped, 6” Leg Spacing

Nominal Wattage	Bulb	Nominal Length (in)	MOL (in)	Base	Product Number	Ordering Abbreviation	Pkg Qty	Avg Rated Life @3hrs/start	CCT (K)	CRI	Approx Lumens Initial @25°C/77°F	Mean	Symbols & Footnotes
40	T12	22.5	22.6	Med Bipin	24082	<b>FB40/D41/6</b>	12	18000	4100	70	3050	2745	30,31,33,48

### Circline T9 Rapid Start Lamps

Nominal Wattage	Bulb	Outside Diameter (in)	Base	Product Number	Ordering Abbreviation	Pkg Qty	Avg Rated Life @3hrs/start (@12hrs/start)	CCT (K)	CRI	Approx Lumens Initial @25°C/77°F	Mean	Symbols & Footnotes
20	T9	6.25 - 6.75	4 PIN	20155	<b>FC6T9/WW/RS</b>	12	8000	3000	52	800	696	31,33,42,48
				20156	<b>FC6T9/CW/RS</b>	12	8000	4200	60	750	653	31,33,42,48
22	T9	8.00 - 8.50	4 PIN	20088	<b>FC8T9/WW/RS</b>	12	12000	3000	52	1050	914	31,33,42,48
				20209	<b>FC8T9/DSW/RP</b>	6	12000	3000	70	1100	990	31,33,42,48
				20151	<b>FC8T9/CW/RS/6 PACK</b>	6	12000	4200	60	1050	914	31,33,42,48
				20148	<b>FC8T9/CW/RS</b>	12	12000	4200	60	1050	914	31,33,42,48
				20080	<b>FC8T9/D/RS</b>	12	12000	6500	76	900	783	31,33,42,48
30	T9	8.00 - 8.50	4 PIN	20210	<b>FC8T9/830/EL</b>	6	10000	3000	80	1850	1591	31,33,40,49,79,81
32	T9	11.5 - 12.0	4 PIN	20233	<b>FC12T9/DSW/RP</b>	6	15000	3000	70	2100	1806	31,33,42,48
				20037	<b>FC12T9/WW/RS</b>	12	15000	3000	52	1950	1697	31,33,42,48
				20143	<b>FC12T9/CW/RS/6 PACK</b>	6	15000	4200	60	1925	1675	31,33,42,48
				20142	<b>FC12T9/CW/RS</b>	12	15000	4200	60	1925	1675	31,33,42,48
				20030	<b>FC12T9/D/RS</b>	12	15000	6500	76	1650	1436	31,33,42,48
40	T9	15.6 - 16.0	4 PIN	20057	<b>FC16T9/WW/RS</b>	12	18000	3000	52	2800	2436	31,33,42,48
				20132	<b>FC16T9/CW/RS</b>	12	18000	4200	60	2750	2393	31,33,42,48
				20072	<b>FC16T9/D/RS</b>	12	18000	6500	76	2350	2045	31,33,42,48

### High Output (800mA) SUPERSAVER® Rapid Start Lamps

Nominal Wattage	Bulb	Nominal Length (in)	MOL (in)	Base	Product Number	Ordering Abbreviation	Pkg Qty	Avg Rated Life @3hrs/start	CCT (K)	CRI	Approx Lumens Initial @25°C/77°F	Mean	Symbols & Footnotes
55	T12	48	46	Recessed DC	25137	<b>F48T12D35/HO/SS</b>	30	12000	3500	70	3750	3375	27,31,33,97
95	T12	96	93.91	Recessed DC	25011	<b>F96T12/WW/HO/SS</b>	15	12000	3000	52	7700	6237	27,31,33,97
					25024	<b>F96T12/D35/HO/SS</b>	15	12000	3500	48	8350	7515	27,31,33,97
					25023	<b>F96T12/D41/HO/SS</b>	15	12000	4100	70	8350	7515	27,31,33,97
					25025	<b>F96T12/LW/HO/SS</b>	15	12000	4150	48	8000	6480	27,31,33,97
					25010	<b>F96T12/CW/HO/SS</b>	15	12000	4200	60	8000	6480	27,31,33,97
					25001	<b>F96T12/CW/HO/SS/ECO</b>	15	12000	4200	60	8000	6480	27,31,33,76,97

### High Output (800mA) Standard Rapid Start Lamps

Nominal Wattage	Bulb	Nominal Length (in)	MOL (in)	Base	Product Number	Ordering Abbreviation	Pkg Qty	Avg Rated Life @3hrs/start	CCT (K)	CRI	Approx Lumens Initial @25°C/77°F	Mean	Symbols & Footnotes
25	T12	18	15.91	Recessed DC	25303	<b>F18T12/DSGN50/HO</b>	30	9000	5000	90	850	740	31,33,48
35	T12	24	21.91	Recessed DC	25313	<b>F24T12/CW/HO</b>	30	9000	4200	60	1650	1337	31,33,48
					25312	<b>F24T12/DSGN50/HO</b>	30	9000	5000	90	1200	1044	31,33,48
					25314	<b>F24T12/D/HO</b>	30	9000	6500	76	1400	1134	31,33,48



## RAPID START LAMPS

### High Output (800mA) Standard Rapid Start Lamps

Nominal Wattage	Bulb	Nominal Length (in)	MOL (in)	Base	Product Number	Ordering Abbreviation	Pkg Qty	Avg Rated Life @3hrs/start	CCT (K)	Approx Lumens		Symbols & Footnotes	
										Initial	Mean		
42	T12	30	27.91	Recessed DC	25322	F30T12/CW/HO	30	9000	4200	60	2250	1825	31,33,48
45	T12	36	33.91	Recessed DC	25333	F36T12/CW/HO	30	9000	4200	60	2850	2309	31,33,48
					25334	F36T12/DSGN50/HO	30	9000	5000	90	2100	1701	CRU 31,33,48
					25332	F36T12/D/HO	30	9000	6500	76	2500	2025	CRU 31,33,48
55	T12	42	39.91	Recessed DC	25342	F42T12/CW/HO	30	9000	4200	60	3400	2754	31,33,48
					25344	F42T12/DSGN50/HO	30	9000	5000	90	2550	2066	CRU 31,33,48
					25343	F42T12/D/HO	30	9000	6500	76	3050	2471	CRU 31,33,48
60	T12	48	46	Recessed DC	25147	F48T12/WW/HO	30	12000	3000	52	4130	3345	31,33,48,97
					25148	F48T12/D830/HO	30	12000	3000	80	4400	4048	CRU 31,33,48,97
					25154	F48T12/D35/HO	30	12000	3500	70	4250	3825	CRU 31,33,48,97
					25136	F48T12/D41/HO	30	12000	4100	70	4250	3443	CRU 31,33,48,97
					25146	F48T12/CW/HO	30	12000	4200	60	4050	3281	31,33,48,97
					25122	F48T12/CW/HO/ECO	30	12000	4200	60	4050	3281	31,33,48,76,97
					25153	F48T12/DSGN50/HO	30	12000	5000	90	3050	2471	CRU 31,33,48,97
					25150	F48T12/D/HO	30	12000	6500	76	3600	2916	CRU 31,33,48,97
75	T12	60	57.91	Recessed DC	25128	F60T12/D35/HO	30	12000	3500	70	5600	5040	CRU 31,33,48,97
					25126	F60T12/CW/HO	30	12000	4200	60	5200	4212	31,33,48,97
					25119	F60T12/DSGN50/HO	30	12000	5000	90	3850	3119	CRU 31,33,48,97
					25120	F60T12/D/HO	30	12000	6500	76	4600	3826	CRU 31,33,48,97
80	T12	64	61.91	Recessed DC	25352	F64T12/CW/HO	30	12000	4200	60	5750	4658	31,33,48,97
					25355	F64T12/DSGN50/HO	30	12000	5000	90	4200	3402	CRU 31,33,48,97
					25353	F64T12/D/HO	30	12000	6500	76	4900	3969	CRU 31,33,48,97
85	T12	72	69.91	Recessed DC	25098	F72T12/D830/HO	15	12000	3000	80	6750	6210	CRU 1,31,33,48,97
					25177	F72T12/WW/HO	15	12000	3000	52	6400	5184	1,31,33,48,97
					27249	F72T12/D35/HO	15	12000	3500	70	6650	5985	CRU 1,31,33,48,97
					25281	F72T12/D835/HO	15	12000	3500	80	6750	6210	CRU 1,31,33,48,97
					25182	F72T12/N/HO	15	12000	3600	86	4400	3564	CRU 1,31,33,48,97
					27245	F72T12/D41/HO	15	12000	4100	70	6650	5985	CRU 1,31,33,48,97
					25176	F72T12/CW/HO	15	12000	4200	60	6250	5063	1,31,33,48,97
					25171	F72T12/CW/HO/ECO	15	12000	4200	60	6250	5063	1,31,33,48,76
					25190	F72T12/DSGN50/HO	15	12000	5000	90	4600	3726	CRU 1,31,33,48,97
					25189	F72T12/D/HO	15	12000	6500	76	5550	4496	CRU 1,31,33,48,97
100	T12	84	81.91	Recessed DC	25384	F84T12/CW/HO	15	12000	4200	60	7550	6115	31,33,48,97
					25386	F84T12/DSGN50/HO	15	12000	5000	90	5600	4536	CRU 31,33,48,97
					25385	F84T12/D/HO	15	12000	6500	76	6700	5427	CRU 31,33,48,97
110	T12	96	93.91	Recessed DC	25149	F96T12/D30/HO	15	12000	3000	70	9050	8145	CRU 31,33,48,97
					25152	F96T12/D830/HO	15	12000	3000	80	9400	8648	CRU 31,33,48,97
					25165	F96T12/D35/HO	15	12000	3500	70	9050	8145	CRU 31,33,48,97
					25166	F96T12/D835/HO	15	12000	3500	80	9400	8648	CRU 31,33,48,97
					25162	F96T12/N/HO	15	12000	3600	86	6050	4900	CRU 31,33,48,97
					25184	F96T12/D41/HO	15	12000	4100	70	9050	8145	CRU 31,33,48,97



## RAPID START LAMPS

### High Output (800mA) Standard Rapid Start Lamps

Nominal Wattage	Bulb	Nominal Length (in)	MOL (in)	Base	Product Number	Ordering Abbreviation	Pkg Qty	Avg Rated Life @3hrs/start	CCT (K)	CRI	Approx Lumens @25°C/77°F		Symbols & Footnotes
											Initial	Mean	
110	T12	96	93.91	Recessed DC	25164	<b>F96T12/DSGN50/HO</b>	15	12000	5000	90	6450	5225	31,33,48,97
					25185	<b>F96T12/D865/HO</b>	15	12000	6500	80	8800	7920	31,33,48,97

### High Output (800mA) Rapid Start Lamps for Cold Temperature Operation

Nominal Wattage	Bulb	Nominal Length (in)	MOL (in)	Base	Product Number	Ordering Abbreviation	Pkg Qty	Avg Rated Life @3hrs/start	CCT (K)	CRI	Approx Lumens @25°C/77°F		Symbols & Footnotes
											Initial	Mean	
110		96	93.91	Recessed DC	25118	<b>F96T12/CW/HO/COLD/10/CVP</b>	10	12000	4200	60	8600	6966	31,33,48,91,97
					25129	<b>F96T12/CW/HO/CT/ECO</b>	15	12000	4200	60	8600	6966	31,33,48,76,91,97
					25134	<b>F96T12/CW/HO/COLD TEMP</b>	15	12000	4200	60	8600	6966	31,33,48,91,97
					25135	<b>F96T12/D/HO/COLD TEMP</b>	15	12000	6500	76	7600	6156	31,33,48,91,97

### Very High Output (1500mA) SUPERSAVER® Rapid Start Lamps

Nominal Wattage	Bulb	Nominal Length (in)	MOL (in)	Base	Product Number	Ordering Abbreviation	Pkg Qty	Avg Rated Life @3hrs/start	CCT (K)	CRI	Approx Lumens @25°C/77°F		Symbols & Footnotes
											Initial	Mean	
195	T12	96	93.91	Recessed DC	25296	<b>F96T12/CW/VHO/SS</b>	15	10000	4200	60	13000	9100	28,31,33,48,108

### Very High Output (1500mA) Standard Rapid Start Lamps

Nominal Wattage	Bulb	Nominal Length (in)	MOL (in)	Base	Product Number	Ordering Abbreviation	Pkg Qty	Avg Rated Life @3hrs/start	CCT (K)	CRI	Approx Lumens @25°C/77°F		Symbols & Footnotes
											Initial	Mean	
115	T12	48	46	Recessed DC	25248	<b>F48T12/CW/VHO</b>	30	10000	4200	60	6600	4620	31,33,48,108
					25249	<b>F48T12/CW/VHO/LT</b>	30	10000	4200	60	6750	5250	31,33,48,58,88,108
					25244	<b>F48T12/D/VHO</b>	30	10000	6500	76	5600	3920	31,33,48,108
135	T12	60	57.91	Recessed DC	25262	<b>F60T12/CW/VHO</b>	30	10000	4200	60	8700	6090	31,33,48,108
141	T12	60	57.91	Recessed DC	25263	<b>F60T12/CW/VHO/LT</b>	30	10000	4200	60	8700	6090	31,33,48,58,88,108
160	T12	72	69.91	Recessed DC	25272	<b>F72T12/CW/VHO</b>	15	10000	4200	60	10600	7420	31,33,48,108
					25274	<b>F72T12/CW/VHO/LT</b>	15	10000	4200	60	11000	7700	31,33,48,58,88,108
					25270	<b>F72T12/D/VHO</b>	15	10000	6500	76	9400	6580	31,33,48,108
215	T12	96	93.91	Recessed DC	25209	<b>F96T12/CW/VHO</b>	15	10000	4200	60	14000	9800	31,33,48,108
					25292	<b>F96T12/CW/VHO/LT</b>	15	10000	4200	60	15000	10500	31,33,48,58,88,108
					25210	<b>F96T12/D/VHO</b>	15	10000	6500	76	11600	8120	31,33,48,108

## INSTANT START LAMPS

### Slimline SUPERSAVER® Instant Start Lamps

Nominal Wattage	Bulb	Nominal Length (in)	MOL (in)	Base	Product Number	Ordering Abbreviation	Pkg Qty	Avg Rated Life @3hrs/start	CCT (K)	CRI	Approx Lumens @25°C/77°F		Symbols & Footnotes
											Initial	Mean	
32	T12	48	46.00	Single Pin	24829	<b>F48T12/D35/SS</b>	30	9000	3500	70	2575	2369	26,31,33
					24825	<b>F48T12/D41/SS</b>	30	9000	4100	70	2575	2369	26,31,33
					24823	<b>F48T12/CW/SS</b>	30	9000	4200	60	2450	2200	26,31,33
57	T12	96	94	Single Pin	29900	<b>F96T12/D41/SSP/ECO</b>	15	12000	4100	82	5600	5152	26,31,33,76,97

## INSTANT START LAMPS

### Slimline SUPERSAVER® Instant Start Lamps

Nominal Wattage	Bulb	Nominal Length (in)	MOL (in)	Base	Product Number	Ordering Abbreviation	Pkg Qty	Avg Rated Life @3hrs/start	CCT (K)	Approx Lumens		Symbols & Footnotes	
										Initial	Mean		
60	T12	96	94	Single Pin	29795	F96T12/WW/SS/ECO	15	12000	3000	52	5500	4840	☼ 26,31,33,76,97
					29809	F96T12/D30/SS/ECO	15	12000	3000	70	5600	5152	☼ 26,31,33,76,97
					29854	F96T12/D830/SS/ECO	15	12000	3000	80	5800	5452	☼ 26,31,33,76,97
					29819	F96T12/D35/SS	15	12000	3500	70	5600	5152	☼ 26,31,33,97
					29808	F96T12/D35/SS/ECO	15	12000	3500	70	5600	5152	☼ 26,31,33,76,97
					29811	F96T12/D835/SS	15	12000	3500	80	5800	5452	☼ 26,31,33,97
					29859	F96T12/D835/SS/ECO	15	12000	3500	80	5800	5452	☼ 26,31,33,76,97
					29853	F96T12/D41/SS/ECO	15	12000	4100	70	5600	5152	☼ 26,31,33,76,97
					29860	F96T12/D841/SS/ECO	15	12000	4100	80	5800	5452	☼ 26,31,33,76,97
					29820	F96T12/LW/SS	15	12000	4150	48	5600	4928	☼ 26,31,33,97
					29815	F96T12/CW/SS	15	12000	4200	60	5300	4664	☼ 26,31,33,97
					29805	F96T12/CW/SS/CVP	10	12000	4200	60	5300	4664	☼ 26,31,33,97
					29816	F96T12/CW/SS/UPC	15	12000	4200	60	5300	4664	☼ 26,31,33,97
					29555	F96T12/CW/SS/SL	15	12000	4200	60	5140	4420	☼ 26,31,33,96,97,98
					29505	F96T12/CW/SS/ECO	15	12000	4200	60	5300	4664	☼ 26,31,33,76,97
					29851	F96T12/D865/SS	15	12000	6500	80	5300	4770	☼ 26,31,33,97
					29828	F96T12/DX/SS	15	12000	6500	88	3860	3397	☼ 26,31,33,97
					29868	F96T12/DX/SS/ECO	15	12000	6500	88	3860	3397	☼ 26,31,33,76,97

### Slimline Standard Instant Start Lamps

Nominal Wattage	Bulb	Nominal Length (in)	MOL (in)	Base	Product Number	Ordering Abbreviation	Pkg Qty	Avg Rated Life @3hrs/start	CCT (K)	Approx Lumens		Symbols & Footnotes	
										Initial	Mean		
21	T12	24	22	Single Pin	22403	F24T12/CW	30	7500	4200	60	1150	1000	☼ 31,33,48
25	T6	42	40	Single Pin	24270	F42T6/WW	24	7500	3032	52	1825	1606	☼ 31,33,48
					24269	F42T6/D35	24	7500	3500	70	1830	1684	☼ 31,33,48
					24266	F42T6/CW	24	7500	4200	60	1750	1540	☼ 31,33,48
30	T12	36	34	Single Pin	23618	F36T12/CW	30	7500	4200	60	1970	1734	☼ 31,33,48
38	T6	64	62	Single Pin	26470	F64T6/WW	24	7500	3000	52	2900	2552	☼ 31,33,48
					26466	F64T6/CW	24	7500	4200	60	2800	2464	☼ 31,33,48
	T8	72	70	Single Pin	27270	F72T8/WW	24	7500	3000	52	3100	2728	☼ 31,33,48
					27266	F72T8/CW	24	7500	4200	60	3050	2684	☼ 31,33,48
27200	F72T8/D	24	7500	6500	76	2600	2288	☼ 31,33,48					
39	T12	48	46	Single Pin	24832	F48T12/D35	30	9000	3500	70	3000	2760	☼ 31,33,48
					24827	F48T12/CW/ECO	30	9000	4200	60	2820	2482	☼ 31,33,48,76
					24830	F48T12/CW	30	9000	4200	60	2820	2482	☼ 31,33,48

## INSTANT START LAMPS

### Slimline Standard Instant Start Lamps

Nominal Wattage	Bulb	Nominal Length (in)	MOL (in)	Base	Product Number	Ordering Abbreviation	Pkg Qty	Avg Rated Life @3hrs/start	CCT (K)	CRI	Approx Lumens		Symbols & Footnotes
											Initial @25°C/77°F	Mean	
39	T12	48	46	Single Pin	24834	<b>F48T12/D</b>	30	9000	6500	76	2450	2156	31,33,48
					24836	<b>F48T12D/ECO</b>	30	9000	6500	76	2450	2156	31,33,48,76
50	T12	60	58	Single Pin	26018	<b>F60T12/D35</b>	30	12000	3500	70	3850	3542	31,33,48,97
					26001	<b>F60T12/CW</b>	30	12000	4200	60	3700	3256	31,33,48,97
					26002	<b>F60T12/D</b>	30	12000	6500	76	3000	2640	31,33,48,97
51	T8	96	94	Single Pin	29666	<b>F96T8/CW</b>	24	7500	4200	60	4000	3520	31,33,48
					29650	<b>F96T8/D</b>	24	7500	6500	76	3550	3124	31,33,48
52	T12	64	62	Single Pin	26403	<b>F64T12/CW</b>	30	12000	4200	60	3900	3432	31,33,48,97
					26404	<b>F64T12/D</b>	30	12000	6500	76	3300	2904	31,33,48,97
55	T12	72	70	Single Pin	27255	<b>F72T12/D830</b>	15	12000	3000	80	4800	4512	31,33,48,97
					27250	<b>F72T12/D35</b>	15	12000	3500	70	4700	4324	31,33,48,97
					27243	<b>F72T12/D41</b>	15	12000	4100	70	4700	4324	31,33,48,97
					27256	<b>F72T12/CW</b>	15	12000	4200	60	4500	3960	31,33,48,97
					27259	<b>F72T12/D</b>	15	12000	6500	76	3800	3432	31,33,48,97
70	T12	84	82	Single Pin	28417	<b>F84T12/CW</b>	15	12000	4200	60	5300	4664	31,33,48,97
75	T12	96	94	Single Pin	29796	<b>F96T12/D30/ECO</b>	15	12000	3000	70	6420	5906	31,33,48,76,97
					29827	<b>F96T12/D830</b>	15	12000	3000	80	6550	6157	31,33,48,97
					29856	<b>F96T12/D830/ECO</b>	15	12000	3000	80	6550	6157	31,33,48,76,97
					29685	<b>F96T12/D35</b>	15	12000	3500	70	6420	5906	31,33,48,97
					29686	<b>F96T12/D35/ECO</b>	15	12000	3500	70	6420	5906	31,33,48,76,97
					29843	<b>F96T12/D835</b>	15	12000	3500	80	6550	6157	31,33,48,97
					29838	<b>F96T12/D835/ECO</b>	15	12000	3500	80	6550	6157	31,33,48,76,97
					29797	<b>F96T12/D41/CVP</b>	10	12000	4100	70	6420	5906	31,33,48,97
					29478	<b>F96T12/CWX</b>	15	12000	4100	87	4400	3872	31,33,48,97
					29858	<b>F96T12/CWX/CVP</b>	10	12000	4100	87	4400	3872	31,33,48,97
					29489	<b>F96T12/CWX/UPC</b>	15	12000	4100	87	4400	3872	31,33,48,97
					29852	<b>F96T12/D41/UPC</b>	15	12000	4100	70	6420	5906	31,33,48,97
					29798	<b>F96T12/D41/ECO</b>	15	12000	4100	70	6420	5906	31,33,48,76,97
					29857	<b>F96T12/D841</b>	15	12000	4100	80	6550	6157	31,33,48,97
					29850	<b>F96T12/D841/ECO</b>	15	12000	4100	80	6550	6157	31,33,48,76,97
					29833	<b>F96T12/DSGN50</b>	15	12000	5000	90	4400	3872	31,33,48,97
					29849	<b>F96T12/D865</b>	15	12000	6500	80	6000	5520	31,33,48,97
29500	<b>F96T12/DX</b>	15	12000	6500	88	4360	3837	31,33,48,97					

## PREHEAT LAMPS

### Miniature T5 Preheat Lamps (Starter Required)

Nominal Wattage	Bulb	Nominal Length (in)	MOL (in)	Base	Product Number	Ordering Abbreviation	Pkg Qty	Avg Rated Life @3hrs/start	CCT (K)	Approx Lumens		Symbols & Footnotes	
										Initial	Mean		
										@25°C/77°F			
4	T5	6	5.91	Mini Bipin	20416	F4T5/CW	24	6000	4200	60	135	117	31,33
					20415	F4T5CW/BL/1/6	6	6000	4200	60	135	117	31,33
6	T5	9	8.91	Mini Bipin	20617	F6T5/WW	24	7500	3000	52	275	239	31,33
					20619	F6T5CW/BL/1/6	6	7500	4200	60	270	235	31,33
					20616	F6T5/CW	24	7500	4200	60	270	235	31,33
8	T5	12	11.91	Mini Bipin	20817	F8T5/WW	24	7500	3000	52	400	348	31,33
					20819	F8T5/SW/BL/1/6	6	7500	3000	52	400	348	31,33
					20837	F8T5/CWX	24	7500	4100	87	270	235	CR31,33
					20816	F8T5/CW	24	7500	4200	60	390	339	31,33
					20834	F8T5CW/BL/1/6	6	7500	4200	60	390	339	31,33
					20820	F8T5/D	24	7500	6500	76	350	305	CR31,33
13	T5	21	20.91	Mini Bipin	21317	F13T5/WW	24	7500	3000	52	880	766	31,33
					21316	F13T5/CW	24	7500	4200	60	860	748	31,33
					21315	F13T5CW/BL/1/6	6	7500	4200	60	860	748	31,33

### Standard T8 and T12 Preheat Lamps (Starter Required)

Nominal Wattage	Bulb	Nominal Length (in)	MOL (in)	Base	Product Number	Ordering Abbreviation	Pkg Qty	Avg Rated Life @3hrs/start	CCT (K)	Approx Lumens		Symbols & Footnotes	
										Initial	Mean		
										@25°C/77°F			
13	T8	12	11.71	Med Bipin	21766	F13T8/CW	24	7500	4200	60	530	461	31,33
14	T8	15	14.78	Med Bipin	21486	F14T8/CW	24	7500	4200	60	685	644	31,33
					21488	F14T8/D	24	7500	6500	76	575	561	CR31,33
					21435	F14T12/WW	30	9000	3000	52	660	574	31,33
	T12	15	14.78	Med Bipin	21451	F14T12/DSW/RP	6	9000	3000	70	720	648	CR31,33
					21536	F14T12/DCW/1/6/RP	6	9000	4100	70	720	648	31,33
					21409	F14T12/CW	30	9000	4200	60	650	566	31,33
					21410	F14T12/CW/6/RP	6	9000	4200	60	650	566	31,33
21411	F14T12/D	30	9000	6500	76	590	513	CR31,33					
15	T8	18	17.78	Med Bipin	21656	F15T8/DSW/RP	6	7500	3000	70	900	810	CR31,33
					21610	F15T8/D830	24	7500	3000	82	920	846	CR31,33
					21701	F15T8/WW	24	7500	3000	52	845	735	31,33
					21765	F15T8/SW/RP	6	7500	3000	52	845	735	31,33
					21609	F15T8/D35	24	7500	3500	70	940	846	CR31,33
					21682	F15T8/N	24	7500	3600	86	560	487	CR31,33
					21603	F15T8/DCW/RP	6	7500	4100	70	900	810	CR31,33
					21616	F15T8/CW	24	7500	4200	60	825	718	31,33
					21619	F15T8/CW/6PK	6	7500	4200	60	825	718	31,33
					21642	F15T8/DSGN50	24	7500	5000	90	600	539	CR31,33
					21600	F15T8/D	24	7500	6500	76	700	653	CR31,33
					T12	18	17.78	Med Bipin	21542	F15T12/WW	30	9000	3000
	21551	F15T12/DSW/RP	6	9000					3000	70	770	693	CR31,33
					21532	F15T12/CW	30	9000	4200	60	750	653	31,33

## PREHEAT LAMPS

## Standard T8 and T12 Preheat Lamps (Starter Required)

Nominal Wattage	Bulb	Nominal Length (in)	MOL (in)	Base	Product Number	Ordering Abbreviation	Pkg Qty	Avg Rated Life @3hrs/start	CCT (K)	CRI	Approx Lumens		Symbols & Footnotes
											Initial @25°C/77°F	Mean @25°C/77°F	
15	T12	18	17.78	Med Bipin	21513	F15T12/CW/6PK	6	9000	4200	60	750	653	31,33
					21535	F15T12/DCW/RP	6	9000	4100	76	770	693	31,33
					21534	F15T12/D	30	9000	6500	76	660	574	31,33
18	T8	24	23.78	Med Bipin	23014	F18T8CW/K24	24	7500	4200	60	1190	1035	31,33
					23012	F18T8CW/K24/1/12/UPC	12	7500	4200	60	1190	1035	31,33
					23027	F18T8CW/K26	24	7500	4200	60	1280	1079	31,33
		26	25.78	Med Bipin	23025	F18T8/CW/K26PLT	3168	7500	4200	60	1280	1079	31,33
					21728	F18T8/D/K26	24	7500	6500	76	1100	957	31,33
		28	27.78	Med Bipin	23028	F18T8CW/K28	24	7500	4200	60	1360	1131	31,33
		30	29.78	Med Bipin	23030	F18T8CW/K30	24	7500	4200	60	1400	1200	31,33
20	T12	24	23.78	Med Bipin	22131	F20T12/WW	30	9000	3000	52	1250	1088	31,33
					22134	F20T12/WW/RP	6	9000	3000	52	1250	1088	31,33
					22252	F20T12/DSW/RP	6	9000	3000	70	1300	1170	31,33
					22251	F20T12/D35	30	9000	3500	70	1300	1170	31,33
					22256	F20T12/DCW/RP	6	9000	4100	70	1300	1170	31,33
					22078	F20T12/CW	30	9000	4200	60	1200	1044	31,33
					22074	F20T12/CW/CVP/10	10	9000	4200	60	1200	1044	31,33
					22015	F20T12/CW/RP	6	9000	4200	60	1200	1044	31,33
					22073	F20T12/CW/UPC	30	9000	4200	60	1200	1044	31,33
					22119	F20T12/DSGN50	30	9000	5000	90	880	766	31,33
					22083	F20T12/D	30	9000	6500	76	1075	935	31,33
25	T12	28	27.78	Med Bipin	22527	F25T12/CW/28	30	7500	4200	60	1670	1453	31,33
					22333	F25T12/WW/30	30	7500	3000	52	1750	1523	31,33
		30	29.78	Med Bipin	22528	F25T12/CW/30	30	7500	4200	60	1730	1505	31,33
					22529	F25T12/CW/33	30	7500	4200	60	1850	1610	31,33
30	T8	36	35.78	Med Bipin	23701	F30T8/WW	24	7500	3000	52	2150	1871	31,33
					23140	F30T8/DWW/RP	6	7500	3000	70	2360	2124	31,33
					23182	F30T8/N	24	7500	3600	86	1500	1305	31,33
					23127	F30T8/CWX	24	7500	4100	87	1550	1349	31,33
					23116	F30T8/CW	24	7500	4200	60	2180	1897	31,33
					23121	F30T8CW 6/CS	6	7500	4200	60	2180	1897	31,33
					23100	F30T8/D	24	7500	6500	76	1850	1653	31,33
40	T12	48	47.2	Med Bipin	24409	L40W/30-1	25		3000	50		31	
58	T8	60	59.6	Med Bipin	24729	L58W/840	25	20000	4000	80	5200	4785	31,33,48
70	T8	70	70	Med Bipin	20804	L70W / 21 - 840	25	15000	4000	80	6550	6026	31,33,48





## SPECIALTY FLUORESCENT LAMPS

## SAFELINE® Shatter Resistant Coated Lamps

Nominal Wattage	Bulb	Nominal Length (in)	MOL (in)	Base	Product Number	Ordering Abbreviation	Pkg Qty	Avg Rated Life @3hrs/start	CCT (K)	CRI	Approx Lumens		Symbols & Footnotes
											Initial @25°C/77°F	Mean @25°C/77°F	
32	T8	48	47.78	Med Bipin	21678	F032/735/SL	30	25000	3500	78	2716	2444	31,33,52,96, 98, 119

## SPECIALTY FLUORESCENT LAMPS






### SAFELINE® Shatter Resistant Coated Lamps

Nominal Wattage	Bulb	Nominal Length (in)	MOL (in)	Base	Product Number	Ordering Abbreviation	Pkg Qty	Avg Rated Life @3hrs/start	CCT (K)	CRI	Approx Lumens		Symbols & Footnotes
											Initial	Mean	
32	T8	48	47.78	Med Bipin	21547	F032/741ECO/SL	30	25000	4100	78	2716	2444	☉  31,33,52,76,96,98,119
34	T12	48	47.78	Med Bipin	24396	F34CW/SS/SL <i>formerly F40CW/SS/SL</i>	30	20000	4200	60	2570	2313	☉ 2,24,30,31,33,96,98
54	T5	48	45.8	Mini Bipin	21020	FP54/835/HO/ECO/SL	40	25000	3500	85	4316	4014	 31,33,38,48,74,76,96,98
					21021	FP54/841/HO/ECO/SL	40	25000	4100	85	4316	4014	 31,33,48,74,76,96,98
					21022	FP54/850/HO/ECO/SL	40	25000	5000	85	4243	3946	 31,33,48,74,76,96,98
60	T12	96	94	Single Pin	29555	F96T12/CW/SS/SL	15	12000	4200	60	5140	4420	☉ 26,31,33,96,97,98






### Weather-Shielded Jacketed Lamps

Nominal Wattage	Bulb	Nominal Length (in)	MOL (in)	Base	Product Number	Ordering Abbreviation	Pkg Qty	Avg Rated Life @3hrs/start	CCT (K)	CRI	Approx Lumens		Symbols & Footnotes
											Initial	Mean	
70	T14.5	60	57.91	Recessed DC	21124	FJ60T12/CW/HO	8	12000	4200	60	5300	4293	31,33,48,97,116
110	T12	96	93.1	Recessed DC	21356	FJ96T12/CW/HO	8	12000	4200	60	8500	6885	31,33,48,97,116
115	T12	48	45.91	Recessed DC	21330	FJ48T12/CW/VHO/LT	12	10000	4200	60	6750	4725	31,33,48,88,108,116
165	T12	72	69.91	Recessed DC	21335	FJ72T12/CW/VHO/LT	8	10000	4200	60	10700	7490	31,33,48,88,108,116
215	T12	96	93.1	Recessed DC	21340	FJ96T12/CW/VHO/LT	8	10000	4200	60	15300	10710	31,33,48,88,108,116

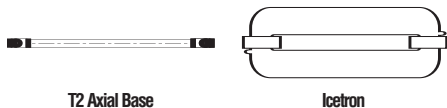
### GRO-LUX® Lamps for Plant Growth & Aquariums

Nominal Wattage	Bulb	Nominal Length (in)	MOL (in)	Base	Product Number	Ordering Abbreviation	Pkg Qty	Avg Rated Life @3hrs/start	CCT (K)	CRI	Approx Lumens		Symbols & Footnotes
											Initial	Mean	
15	T8	18	17.78	Med Bipin	21657	F15T8/GRO/AQ/RP	6	7500		66	325		 31,33,48,57
20	T12	24	23.78	Med Bipin	22013	F20T12/GRO/AQ/WS/RP	6	9000	3400	89	750		 31,33,48,57
					22029	F20T12/GRO/AQ/RP	6	9000		480	 31,33,48,57		
40	T12	48	47.78	Med Bipin	24671	F40/GRO/AQ/WS/RP	6	20000	3400	89	1700		 2,30,31,33,48,56,64
					24660	F40/GRO/AQ/RP	6	20000		1200	 2,30,31,33,48,56,64		

### Miniature T2 Lamps

Nominal Wattage	Bulb	Nominal Length (in)	MOL (in)	Base	Product Number	Ordering Abbreviation	Pkg Qty	Avg Rated Life @3hrs/start	CCT (K)	CRI	Approx Lumens		Symbols & Footnotes
											Initial	Mean	
6	T2	8.6	8.6	Axial	26204	FM6/830	20	10000	3000	80	330	297	 3,31,33,38,48,74,118
					26213	FM6/841	20	10000	4100	80	330	297	 3,31,33,38,48,74,118
8	T2	12.6	12.6	Axial	26237	FM8/830	20	10000	3000	80	540	486	 3,31,33,38,48,74,118
					26232	FM8/841	20	10000	4100	80	540	486	 3,31,33,38,48,74,118
11	T2	16.6	16.6	Axial	26239	FM11/830	20	10000	3000	80	750	675	 3,31,33,38,48,74,118





T2 Axial Base

ICETRON

## SPECIALTY FLUORESCENT LAMPS

### Miniature T2 Lamps

Nominal Wattage	Bulb	Nominal Length (in)	MOL (in)	Base	Product Number	Ordering Abbreviation	Pkg Qty	Avg Rated Life @3hrs/start	CCT (K)	CRI	Approx Lumens @25°C/77°F		Symbols & Footnotes
											Initial	Mean	
11	T2	16.6	16.6	Axial	26235	<b>FM11/835</b>	20	10000	3000	80	750	675	6,31,33,38,48,74,118
					26231	<b>FM11/841</b>	20	10000	4100	80	750	675	6,31,33,38,48,74,118
13	T2	20.6	20.6	Axial	26253	<b>FM13/830</b>	20	10000	3000	80	930	837	6,31,33,38,48,74,118
					26291	<b>FM13/835</b>	20	10000	3500	80	930	837	6,31,33,38,48,74,118
					26230	<b>FM13/841</b>	20	10000	4100	80	930	837	6,31,33,38,48,74,118

### ICETRON® Inductively Coupled, Electrodeless Lamps

The ICETRON® System is a unique adaptation of the inductively coupled electrodeless technology delivering high luminous efficacy and extremely long system life of 100,000 hours in a shape uniquely suited for a variety of lighting applications. The ICETRON lamps and ballasts are designed as dedicated systems and are not interchangeable with other lamps and ballasts. Please consult OSRAM SYLVANIA for fixture design and application assistance. An ICETRON Design Guide is available on request.

Nominal Wattage	Bulb	Nominal Length (in)	MOL (in)	Base	Product Number	Ordering Abbreviation	Pkg Qty	Avg Rated Life @3hrs/start	CCT (K)	CRI	Approx Lumens @25°C/77°F		Symbols & Footnotes
											Initial	Mean	
70	T17	12.32	Mount Brkts	26087	<b>ICE70/835/2P/ECO</b>	1	100000	3500	80	6200	4605	6,31,33,38,51,76,78,100,101	
				26081	<b>ICE70/835</b>	1	100000	3500	80	6200	4605	6,31,33,38,51,78,100,101	
				26088	<b>ICE70/841/2P/ECO</b>	1	100000	4100	80	6200	4605	6,31,33,38,51,76,78,100,101	
				26082	<b>ICE70/841</b>	1	100000	4100	80	6200	4605	6,31,33,38,51,78,100,101	
				26089	<b>ICE70/850/2P/ECO</b>	1	100000	5000	80	5950	4420	6,31,33,38,51,76,78,100,101	
100	T17	12.32	Mount Brkts	26102	<b>ICE100/835/2P/ECO</b>	1	100000	3500	80	8000	5945	6,31,33,38,51,76,78,100,101	
				26103	<b>ICE100/841/2P/ECO</b>	1	100000	4100	80	8000	5945	6,31,33,38,51,76,78,100,101	
				26105	<b>ICE100/850/2P/ECO</b>	1	100000	5000	80	7600	5645	6,31,33,38,51,76,78,100,101	
				26106	<b>ICE100/BL/2P</b>	1						6,31,33,38,51,78,100,101,109	
150	T17	16.28	Mount Brkts	26152	<b>ICE150/835/2P/ECO</b>	1	100000	3500	80	12000	8915	6,31,33,38,51,76,78,100,101	
				26153	<b>ICE150/841/2P/ECO</b>	1	100000	4100	80	12000	8915	6,31,33,38,51,76,78,100,101	
				26155	<b>ICE150/850/2P/ECO</b>	1	100000	5000	80	11650	8655	6,31,33,38,51,76,78,100,101	
				26154	<b>ICE150/BL/2P</b>	1						31,33,38,51,78,100,101,109	

### ICETRON® Inductively Coupled Electrodeless Reflector Lamp

Nominal Wattage	Bulb	Nominal Length (in)	MOL (in)	Base	Product Number	Ordering Abbreviation	Pkg Qty	Avg Rated Life @3hrs/start	CCT (K)	CRI	Approx Lumens @25°C/77°F		Symbols & Footnotes
											Initial	Mean	
100	T17	12.32	Mount Brkts	26161	<b>ICE100/841/R/2P/ECO</b>	1	100000	4100	80	7300	5014	6,31,33,38,51,76,78,100,101	

FULL FLUORESCENT





T12 Med Bipin

T8 Med Bipin

T12 RDC

T5 Mini Bipin

CFL 2Pin

CFL 4 Pin

## SPECIALTY FLUORESCENT LAMPS

### Diazo (SDB)

Nominal Wattage	Bulb	Nominal Length (in)	MOL (in)	Base	Product Number	Ordering Abbreviation	Pkg Qty	Avg Rated Life @3hrs/start	CCT (K)	Approx Lumens @25°C/77°F		Symbols & Footnotes
										Initial	Mean	
65	T12	48	47.78	Med Bipin	24465	F40T12/SDB/65W	30	1000				115

### Blacklight, Preheat Lamps (Starter Required)

These lamps are not intended and should not be used for diagnostic, therapeutic or cosmetic purposes.

Nominal Wattage	Bulb	Nominal Length (in)	MOL (in)	Base	Product Number	Ordering Abbreviation	Pkg Qty	Avg Rated Life @3hrs/start	CCT (K)	Approx Lumens @25°C/77°F		Symbols & Footnotes
										Initial	Mean	
15	T8	18	17.78	Med Bipin	21623	F15T8/350BL	24	7500				31,33,59,60,105
20	T12	24	23.78	Med Bipin	22113	F20T12/350BL	24	9000				31,33,59,60,105
22	T12	15	14.78	Med Bipin	21445	F15T12/350BL/500/PH	30					31,33,59,60,111
25	T8	18	17.78	Med Bipin	21703	F25T8/350BL/18in	24	7500				31,33,59,60,107
30	T8	36	35.78	Med Bipin	23113	F30T8/350BL	24	7500				31,33,59,60,109
32	T12	18	17.78	Med Bipin	21525	F18T12/350BL/700/PH	30					31,33,59,60,112

### Blacklight, Rapid Start Lamps (No Starter Required)

Nominal Wattage	Bulb	Nominal Length (in)	MOL (in)	Base	Product Number	Ordering Abbreviation	Pkg Qty	Avg Rated Life @3hrs/start	CCT (K)	Approx Lumens @25°C/77°F		Symbols & Footnotes
										Initial	Mean	
40	T12	48	47.78	Med Bipin	24922	F40/350BL	30	20000				2,30,31,33,56,60,64,110
115	T12	48	45.91	Recessed DC	25251	FR48T12/350BL/VHO/180	30	10000				31,33,60,90,113

### Blacklight Blue, Preheat Lamps (Starter Required)

Nominal Wattage	Bulb	Nominal Length (in)	MOL (in)	Base	Product Number	Ordering Abbreviation	Pkg Qty	Avg Rated Life @3hrs/start	CCT (K)	Approx Lumens @25°C/77°F		Symbols & Footnotes
										Initial	Mean	
4	T5	6	5.91	Mini Bipin	20425	F4T5/BLB	24	6000				31,33,59,60,99
8	T5	12	11.91	Mini Bipin	20825	F8T5/BLB	24	7500				31,33,59,60,99
15	T8	18	17.78	Med Bipin	21625	F15T8/BLB	6	7500				31,33,59,60,99

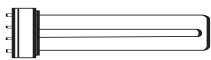
### Blacklight Blue, Rapid Start Lamps (No Starter Required)

Nominal Wattage	Bulb	Nominal Length (in)	MOL (in)	Base	Product Number	Ordering Abbreviation	Pkg Qty	Avg Rated Life @3hrs/start	CCT (K)	Approx Lumens @25°C/77°F		Symbols & Footnotes
										Initial	Mean	
40	T12	48	47.78	Med Bipin	24026	F40/BLB/RP	6	20000				2,30,31,33,56,60,64,102

## GERMICIDAL LAMPS

### Germicidal Compact Fluorescent Lamps

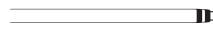
Nominal Wattage	Bulb	Nominal Length (in)	MOL (in)	Base	Product Number	Ordering Abbreviation	Pkg Qty	Avg Rated Life @3hrs/start	CCT (K)	Approx Lumens @25°C/77°F		Symbols & Footnotes
										Initial	Mean	
7	T5			G23	23372	GCF7DS/G23/SE/OF	10	8000				31,33,45,47,50,82
9	T5			G23	23373	GCF9DS/G23/SE/OF	10	8000				31,33,45,47,50,82
11	T4			G23	23377	GCF11DS/G23/SE/OF	10	8000				31,33,45,47,50,82
18	T5			2G11	23378	GFT18DL/2G11/SE/OF	10	8000				31,33,36,48,74,82
24	T5			2G11	23379	GFT24DL/2G11/SE/OF	10	8000				31,33,36,48,74,82



CFL 4 Pin



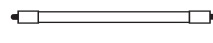
T5 Mini Bipin



T8 Med Bipin



T5 Single End, T6 Single End



T5 Single Pin

## GERMICIDAL LAMPS

### Germicidal Compact Fluorescent Lamps

Nominal Wattage	Bulb	Nominal Length (in)	MOL (in)	Base	Product Number	Ordering Abbreviation	Pkg Qty	Avg Rated Life @3hrs/start	CCT (K)	CRI	Approx Lumens @25°C/77°F		Symbols & Footnotes
											Initial	Mean	
36	T6			2G11	23380	<b>GFT36DL/2G11/SE/OF</b>	10	8000					31,33,36,48,74,82

### Germicidal, Preheat Lamps (Starter Required)

Nominal Wattage	Bulb	Nominal Length (in)	MOL (in)	Base	Product Number	Ordering Abbreviation	Pkg Qty	Avg Rated Life @3hrs/start	CCT (K)	CRI	Approx Lumens @25°C/77°F		Symbols & Footnotes
											Initial	Mean	
6	T5			Mini Bipin	23375	<b>G6T5/OF</b>	10	6000					31,33,45,57,82
8	T5			Mini Bipin	20811	<b>G8T5/OF</b>	24	6000					31,33,45,59,82
10	T8			Med Bipin	23374	<b>G10T8/OF</b>	10	6000					31,33,59,82
15	T8			Med Bipin	21612	<b>G15T8/OF</b>	24	7500					31,33,45,59,82
16	T5			4 PIN	23384	<b>G10T5/4P/SE/OF</b>	10	9000					31,33,59,82
				Mini Bipin	23387	<b>G20T5/G5/OF</b>	10	9000					31,33,59,82
25	T5			Med Bipin	23376	<b>G25T8/OF</b>	10	8000					31,33,59,82
30	T8			Med Bipin	23112	<b>G30T8/OF</b>	24	7500					31,33,45,59,82
39	T5			4 PIN	23381	<b>G36T5/4P/SE/OF</b>	10	9000					31,33,57,82
				Mini Bipin	23382	<b>G36T5/G5/OF</b>	10	9000					31,33,59,82
55	T5			Med Bipin	23388	<b>G55T8/OF</b>	10	8000					31,33,59,82
65	T5			4 PIN	23386	<b>G64T5/4P/SE/OF</b>	10	9000					31,33,82

### Germicidal Instant Start Lamps

Nominal Wattage	Bulb	Nominal Length (in)	MOL (in)	Base	Product Number	Ordering Abbreviation	Pkg Qty	Avg Rated Life @3hrs/start	CCT (K)	CRI	Approx Lumens @25°C/77°F		Symbols & Footnotes
											Initial	Mean	
14	T5			Single Pin	23383	<b>G14T5/SP/OF</b>	10	8000					31,33,82
16	T5			Single Pin	23385	<b>G10T5/SP/OF</b>	10	9000					31,33,82
39	T5			Single Pin	23443	<b>G36T5/SP/OF</b>	10	9000					31,33,82
65	T5			Single Pin	23442	<b>G64T5/SP/OF</b>	10	9000					31,33,82

### Germicidal Amalgam Lamps

Nominal Wattage	Bulb	Nominal Length (in)	MOL (in)	Base	Product Number	Ordering Abbreviation	Pkg Qty	Avg Rated Life @3hrs/start	CCT (K)	CRI	Approx Lumens @25°C/77°F		Symbols & Footnotes
											Initial	Mean	
120	T6			4 PIN	23364	<b>G120T6/4P/SE/OF</b>	5	8000					31,33,82
190	T6			4 PIN	23365	<b>G190T6/4P/SE/OF</b>	5	8000					31,33,82

## FLUORESCENT PREHEAT LAMP STARTERS

### GLOSTAT Starters

Product Number	Ordering Abbreviation	Pkg Qty	Description	Symbols & Footnotes
42812	<b>FS-2</b>	100	Fluorescent starter for use with F14, F15 and F20 preheat fluorescent lamps. UL, CSA	
42901	<b>FS-2/BL/2PK</b>	12	Fluorescent starter for use with F14, F15 and F20 preheat fluorescent lamps, bulk pack with 2 starters. UL, CSA	
44812	<b>FS-4 100/CS</b>	100	Fluorescent starter for use with F13, F30 and F40 preheat lamps. UL, CSA	

## FLUORESCENT PREHEAT LAMP STARTERS








### GLOSTAT Starters

Product Number	Ordering Abbreviation	Pkg Qty	Description	Symbols & Footnotes
44902	<b>FS-4/BL/2PK</b>	12	Fluorescent starter for use with F13, F30 and F40 preheat lamps, blister pack with 2 starters. UL, CSA	
45812	<b>FS-5</b>	100	Fluorescent starter for use with F4, F6 and F8 preheat fluorescent lamps. UL, CSA	
45813	<b>FS-5/BL/2PK</b>	12	Fluorescent starter for use with F4, F6 and F8 preheat fluorescent lamps, blister pack with 2 starters. UL, CSA	
43813	<b>FS-12/BL/2PK</b>	12	Fluorescent starter for use with FC12 Circline lamps when operated by preheat ballasts and F22T8 preheat lamps, blister pack with 2 starters. UL, CSA	
42512	<b>FS-25</b>	100	Fluorescent starter for use with FC6 (20W) & FC8 (22W) Circline lamps when operated by preheat ballasts; F25 and F18T8 preheat lamps. UL, CSA	
42513	<b>FS-25/BL/2PK</b>	12	Fluorescent starter for use with FC6 (20W) & FC8 (22W) Circline lamps when operated by preheat ballasts; F25 and F18T8 preheat lamps, blister pack with 2 starters. UL, CSA	

### COP Starters With Cutout And Manual Reset

Product Number	Ordering Abbreviation	Pkg Qty	Description	Symbols & Footnotes
42302	<b>FS-20 (COP-20)</b>	100	Fluorescent starter with cutout and manual reset for use with F15 & F20 preheat lamps. UL, CSA	
44102	<b>FS-40/400 (COP-40/400)</b>	100	Fluorescent starter with cutout and manual reset for use with F40 preheat lamps. UL, CSA	

## SYMBOLS & FOOTNOTES FOR FLUORESCENT LAMPS

Symbol	Description
	New item introduced within the past year.
	Item will be discontinued when inventory is depleted.
	Rating given for 200mA operation.
	This fluorescent lamp generates radiant energy which is most beneficial for plant propagation and enhances vegetative and reproductive growth of many plants for home and commercial use.
	This lamp or ballast meets minimum Federal efficiency standards.
	This ECOLOGIC® lamp was designed to pass the Federal TCLP criteria for classification as non-hazardous waste in most states. Disposal regulations may vary; check local and state regulations.
	This lamp is a High Color Rendering Lamp

Footnote	Description
1	May be operated at 100 watts (1000MA) same as F84T12/HO.
2	Average life rating at 12 hours operation per start is 28,800 hours.
3	Due to their small diameter, T2 miniature fluorescent lamps operate at higher surface temperatures than other fluorescent lamps. To avoid possible burns, do not touch the lamp during operation and allow sufficient cooling time before removing the lamp from the fixture. The typical bulb wall temperature during operation is 120 degrees at the ends. The maximum allowable bulb wall temperature is 150 degrees C. To avoid electrical shock, turn electrical power off before removing or installing the lamp.
4	The 30,000 hour average rated of the OCTRON (R) XPS CURVALUME (R) lamp is based on operation at 3 hours per start by a dedicated QUICKTRONIC(R) PSX ballast. If operated by other ballasts for T8 OCTRON lamps, life will be the same as that of the XP version of the lamp: typically 24,000 hours for rapid or programmed rapid start operation and 18,000 hours for instant start operation at 3 hours per start.
5	The lamp lumen maintenance factor used to determine the mean lumen value was 95%. This is the lamp lumen maintenance factor at 8,000 hours, 40% of 20,000 hours. It was used to allow comparison to standard OCTRON(R) lamps with an average rated life of 20,000 hours. The lamp lumen maintenance factor at 40% of 24,000 hours, 9600 hours, would be 94%; the lamp lumen maintenance factor at 40% of 30,000 hours, 12000 hours, would be 93%.
6	The /2P version of the ICETRON lamp is supplied with a 24 inch lead wire terminated by a 2-Pin connector rather than the old 12 inch lead, 3-Pin connector design. The /2P versions are powered by QT1X100 ICE/UNV-T or QT1X150 ICE/UNV-T ballasts.
7	Recommended to be used on any F96 T8 Instant Start circuit. It is not recommended to be used: (1) at lamp ambient temperatures below 60 degrees F or in drafty locations, (2) on low power factor ballast, or (3) inverter operated emergency lighting systems unless any of the above equipment is specifically listed for use with the OCTRON F096 SUPERSAVER 55 watt T8 lamp. Any of the above situations could result in lamp starting and stabilization problems.
8	Current ballast design incorporates a modular 2-Pin connector plugin from the lamp. An adapter, NAED code 26240, is available to connect 3-Pin lamp types to current (2-Pin) design ballasts.
9	This lamp may also be operated by the OSRAM SYLVANIA QUICKTRONIC(R) PSN ballast (.88 BF), or the QUICKTRONIC PSX ballast (.71 BF).
10	The lumen maintenance factor used to determine the mean lumens value was 92%, measured at 40% of the average rated life, 15,000 hours. The lumen maintenance factor at 4,000-4,800 hours (for comparison to F96T12 HO and F96T12 Slimline instant start lamps) is 93%.
11	Minimum starting temperature for DULUX EL lamps is 0 degrees F
12	For operation in fixtures designed only for 24 ", 30 watt, T-12 Fluorescent lamps.
13	Life rating is based on rapid start operation. Life rating on instant start operation is 15,000 hrs.
14	Caution: Although DURA-ONE lamps can be used with occupancy sensors that have a fluorescent volt-amp rating, DURA-ONE lamps cannot be used on any other dimming circuits, emergency exit fixtures or lights, electronic timers, photocells, lighted switches or any other switches that do not meet UL20 Sec. 7.6.15. In outdoor applications, use only in enclosed fixtures to avoid exposure to weather. Use only on 120V, 60 Hz circuits. Never disassemble or modify lamp. Install or remove unit from fixture by grasping plastic base. Best performance achieved when operated at 77°F (25°C). Operating temperature range of DURA-ONE lamps is -20°F/-29°C to 122°F/50°C.
15	Service life (that amount of time where light output remains greater than or equal to 80% of initial lumens) is 16,000 hours for FP28/RED, FP28/GREEN, FP54/RED/HO and FP54/GREEN/HO and 10,000 hours for FP28/BLUE and FP54/BLUE/HO.
16	The life of this lamp, operated on instant start electronic ballasts is 24,000 hours based on the industry standard life test standard of 3 hours per start.
17	Recommended to be used on any F32 T8 instant start circuit. It is not recommended to be used: (1) with rapid Start circuits unless the open circuit voltage is greater than 570V, (2) at lamp ambient temperatures below 70°F or in drafty locations, (3) in air handling fixtures, (4) on dimming ballasts, (5) on inverter operated emergency lighting systems unless any of the above equipment is specifically listed for 25W lamps, or (6) below 60°F starting temperature. Any of the above situations could result in lamp starting and stabilization problems or system compatibility issues.

## SYMBOLS & FOOTNOTES FOR FLUORESCENT LAMPS

Footnote	Description
18	IF AN OPERATING LAMP IS EXPOSED TO TEMPERATURES BELOW 70°F OR MOVING AIR (WIND, DRAFTS OR AIR FLOW FROM AN AIR CONDITIONING OR VENTILATION SYSTEM) STRIATION, A RHYTHMIC PULSING PATTERN OF LIGHT RUNNING THE LENGTH OF THE TUBE AND/OR A REDUCTION IN LIGHT OUTPUT MAY OCCUR. While visually disconcerting, neither behavior is damaging to lamp life and removing the cause (draft or temperature) will return the lamp to normal operation.
19	The 36,000 hour average rated life of the FO32/800XPS/ECO OCTRON(R) lamp is based on operation at 3 hours per start on a QUICKTRON-IC(R) programmed start ballast. If operated on other ballasts for T8 OCTRON lamps, lamp life will be 36,000 hours for programmed rapid start operation and 24,000 hours for instant start operation at 3 hours per start.
20	The 36,000 hour average rated life of the FO32/800XP/ECO, FO30/800XP/SS/ECO, FO28/800XP/SS/ECO and FO32/25W/800XP/SS/ECO OCTRON(R) lamps is based on operation at 3 hours per start on a QUICKTRONIC(R) programmed start ballast. If operated on other ballasts for T8 OCTRON lamps, lamp life will be 36,000 hours for programmed rapid start operation and 24,000 hours for instant start operation at 3 hours per start.
21	The life rating of FO32/800/ECO OCTRON® lamps operated on rapid start ballasts is 30,000 hours. The life rating of FO32/800/ECO OCTRON lamps operated on instant start ballasts is 24,000 hours.
22	Recommended only for use on 2-lamp, 30 watt rapid-start high power factor lead, indoor ballasts that meet ANSI standards. Not intended for use: (1) at lamp ambient temperatures below 60 degrees F or in drafty locations, (2) on low power factor ballasts, (3) reduced current/reduced light output ballasts, (4) dimming ballasts, or (5) on inverter operated emergency lighting systems unless any of the above equipment is specifically listed for use with 25 watt lamps.
23	If an operating lamp is exposed to drafts or the ambient temperature falls below 60 degrees F, striation (a rhythmic pulsing pattern of light running down the tube) and/or reduction in lamp brightness may occur. While visually disconcerting, neither behavior is damaging to the lamp and removing the cause (draft or temperature) will return the lamp to normal operation.
24	Recommended for use on one or two lamp 40 watt rapid start, high power factor, lead, indoor ballasts that meet ANSI standards. Not intended for use: (1) at lamp ambient temperatures below 60 degrees F or in drafty locations, (2) on low power factor ballasts, (3) reduced current/reduced light output ballasts, (4) dimming ballasts, or (5) on inverter operated emergency lighting systems unless any of the above equipment is specifically listed for use with 34 watt lamps.
25	Recommended for use on two lamp 40 watt rapid start, high power factor, lead indoor ballasts that meet ANSI standards. Not intended for use: (1) at lamp ambient temperatures below 60 degrees F or in drafty locations, (2) on low power factor ballasts, (3) reduced current/reduced light output ballasts, (4) dimming ballasts, (5) on inverter operated emergency lighting systems, or (6) on high frequency electronic ballasts. Use one Thrift/Mate with one F40/SS in each two lamp circuit.
26	Recommended for use on one or two lamp high power factor, lead, instant-start, indoor ballasts that meet ANSI standards. Not intended for use: (1) at lamp ambient temperatures below 60 degrees F or in drafty locations, (2) on low power factor ballasts, (3) reduced current/reduced light output ballasts, (4) dimming ballasts, or (5) on inverter operated emergency lighting systems unless any of the above equipment is specifically listed for use with 32 watt or 60 watt lamps.
27	Recommended for use on one or two lamp high power factor, lead, 8-foot lamp, high output, indoor ballasts that meet ANSI standards. Not intended for use: (1) at lamp ambient temperatures below 60 degrees F or in drafty locations, (2) on low power factor ballasts, (3) reduced current/reduced light output ballasts, (4) dimming ballasts, or (5) on inverter operated emergency lighting systems unless any of the above equipment is specifically listed for use with 95 watt lamps.
28	Recommended for use on 2-lamp high power factor, lead, 8-foot lamp, very high output, indoor ballasts that meet ANSI standards. Not intended for use: (1) at lamp ambient temperatures below 60 degrees F or in drafty locations, (2) on low power factor ballasts, (3) reduced current/reduced light output ballasts, (4) dimming ballasts, or (5) on inverter operated emergency lighting systems unless equipment is specifically listed for use with 195 watt lamps.
29	Recommended for use on two-lamp high power factor, lead-lag, Preheat, indoor ballasts that meet ANSI standards and installed in open type fixtures. Not intended for use: (1) at lamp ambient temperatures below 60 degrees F or in drafty locations (unstable operation or starting difficulties may be experienced below 60 degrees F or in strong drafts); (2) on low power factor ballasts, reduced current, reduced light output ballasts, dimming ballasts, or in inverter operated emergency lighting systems.
30	Average rated life is measured at 3 hours per start on 2-lamp, rapid start magnetic ballasts per IES recommended practice. Lamp life on single-lamp rapid start ballasts may be reduced.
31	Approximate initial lumens after 100 hours operation.
32	Recommended for use on one or two lamp 40 watt rapid start, high power factor, lead, indoor ballasts that meet ANSI standards. Not intended for use: (1) at lamp ambient temperatures below 60 degrees F or in drafty locations, (2) on low power factor ballasts, (3) reduced current/reduced light output ballasts, (4) dimming ballasts, or (5) on inverter operated emergency lighting systems unless any of the above equipment is specifically listed for use with 34 watt lamps. Not to be used on electronic ballasts nor with any other impedance modifying devices.
33	The life ratings of fluorescent lamps are based on 3 hr. burning cycles under specified conditions and with ballast meeting ANSI specifications. If burning cycle is increased, there will be a corresponding increase in the average hours life.
34	Average rated life is based on 3 hours per start operated on rapid start circuits. Average rated life is 7,500 hours on preheat circuits and 5,000 hours on instant start circuits.
35	The life rating of OCTRON and OCTRON Curvalume lamps operated on magnetic rapid start ballasts is 20,000 hours. The life rating of OCTRON and OCTRON Curvalume lamps operated on instant start electronic ballasts is 15,000 hours.

## SYMBOLS & FOOTNOTES FOR FLUORESCENT LAMPS

Footnote	Description
36	These lamps may also be operated on rapid start circuits. On rapid start circuits the 24 watt lamp operates at 27 watts and the 36 watt lamp operated at 39 watts. Rated lamp life is unchanged.
37	Lumen output rated on high frequency operation. 60 HZ operation would result in lower lumen output.
38	Lumen output and life rated on high frequency operation.
39	DULUX F lamps can typically be operated on DULUX L and PENTRON HO ballasts of the same/similar wattage. Check with the ballast manufacturer to verify lamp/ballast compatibility.
40	Rule of Thumb for Compact Fluorescent Lamps: Divide wattage of incandescent lamp by 4 to determine approximate wattage of compact fluorescent lamp that will provide similar light output.
41	Guarded OCTRON lamp has plastic tube guard, which filters 95% of the UV emissions and provides shatter protection.
42	Rating for OSRAM SYLVANIA Circline lamps are based on operation in Rapid Start circuits. They will also operate on preheat circuits.
43	Gold OCTRON lamp has plastic tube guard which filters wavelengths less than 525nm and provides shatter protection.
44	Life rating of OCTRON XP lamps operated on instant start electronic ballasts is 18,000 hours based on the industry standard life test cycle of 3 hours per start.
45	Germicidal lamps can be operated on corresponding wattage preheat ballasts.
46	Amalgam compact fluorescent lamps provide at least 90% light output from 40-140 degrees F. Non-amalgam compact fluorescent lamps provide at least 90% light output from 60-100 degrees F in the base up position, the temperature range is narrower for horizontal or base down.
47	Minimum starting temperature: CF5: -22 degrees F; CF7: -4 degrees F; CF9: 14 degrees F; CF13DS: 14 degrees F; CF13DD: -4 degrees F; CF18DD: 5 degrees F; CF18DT: -4 degrees F; CF26: 14 degrees F.
48	Minimum starting temperature is a function of the ballast; consult the ballast manufacturer.
49	Minimum starting temperature for DULUX EL lamps is 0° F, unless otherwise specified in product literature. .
50	2 pin CF lamps are not suitable for use in frequently cycled applications or with occupancy sensors. 2 pin CF lamps should never be installed in 4 pin sockets regardless if lamp will fit.
51	Color and CRI at amalgam tip temperature of 149 degrees F (65 degrees C) for ICETRON 70 and ICETRON 100 and at 158 degrees F (70 degrees C) amalgam tip temperature for ICETRON 150.
52	OCTRON lamps should be operated only with magnetic rapid start ballasts designed to operate 265 mA, T-8 lamps or high frequency (electronic) ballasts that are either instant start, or rapid start, or programmed rapid start specifically designed to operate T8 lamps. OCTRON lamps may be operated on instant start ballasts with ballast factors ranging from a minimum of 0.71 to a maximum of 1.20 at the nominal ballast input voltage. When OCTRON lamps are operated in the instant start mode, the two wires or two contacts of each socket should be connected to each other. They should then be connected to the appropriate ballast lead wire using National Electric Code techniques.
53	For operation on instant start circuits. Use only in fixtures equipped with Instant Start Ballasts.
54	Approximate length of OCTRON CURVALUME lamps is measured from base face to outside of glass bend.
55	For optimum performance OCTRON CURVALUME 1 5/8 inch leg spacing lamps in the 3000K, 3500K and 4100K color temperatures are now available only in the 82CRI version (800 series). These lamps are made to the same color standards and may be used in combination with other SYLVANIA OCTRON lamps to meet the needs of lighting installations where T8 lamps are used.
56	The "RS" designation has been eliminated to simplify the ordering abbreviation.
57	Preheat lamp, starter required.
58	Low temperature performance rated at 35 degrees F ambient.
59	Starter required.
60	These lamps are not intended and should not be used for diagnostic, therapeutic, or cosmetic purposes.
61	For use with 4,6 & 8 watt lamps.
62	For use with 13,30 & 40 watt lamps.
63	For use with 14,15 & 20 watt lamps.
64	40W Rapid Start Lamps may be used in starter operated fixtures designed for 40W preheat lamps. Life rating for preheat service is approximately 15,000 hours average.
65	For use with 22 watt Circline lamps, 25 watt Std. Lp., FC6 & F18T8.
66	For use with 32 watt Circline lamps, F22T8.
67	For use with 15 & 20 watt lamps.
68	For use with 20 watt lamps.
69	For use with 30 watt lamps.
70	For use with 40 watt lamps.
71	For use with 90 & 100 watt lamps.
72	For use with 90 & 100 watt lamps (4-Pin type).



## SYMBOLS & FOOTNOTES FOR FLUORESCENT LAMPS

Footnote	Description
73	For use with GL-1302 GRO-LUX fixture.
74	There is a NEMA supported, industry issue where T2, T4, and T5 fluorescent and compact fluorescent lamps operated on high frequency ballasts may experience an abnormal end-of-life phenomenon. This end-of-life phenomenon can result in one or both of the following: 1. Bulb wall cracking near the lamp base. 2. The lamp can overheat in the base area and possibly melt the base and socket. NEMA recommends that high frequency compact fluorescent ballasts have an end-of-life shutdown circuit which will safely and reliably shut down the system in the rare event of an abnormal end-of-life failure mode described above. The final requirements of this system are yet to be defined by ANSI. For additional information refer to NEMA papers on their WEBSITE at <a href="http://www.NEMA.org">www.NEMA.org</a> .
75	When base pins or R.D.C. bases are horizontal, window opening is centered downward or upward.
76	SYLVANIA ECOLOGIC fluorescent lamps are designed to pass the Federal Toxic Characteristic Leaching Procedure (TCLP) criteria for classification as non-hazardous waste in most states. TCLP test results are available upon request. Lamp disposal regulations may vary, check your local & state regulations. For more information, please visit <a href="http://www.lamprecycle.org">www.lamprecycle.org</a>
77	This 4-pin DULUX lamp has an internal end-of-life mechanism (EOL) that shuts down the lamp preventing abnormal end-of-life failure modes. This lamp was designed for use with high frequency ballasts that do not have their own end-of-life (lamp)sensing circuits, but it is also compatible with high frequency ballasts that have their own end-of-life (lamp) sensing circuits.
78	ICETRON diameter is the outside diameter of the ferrite coil. ICETRON MOL is the length from the outside edge of the mounting bracket on one end to the outside edge of the mounting bracket on the opposite end.
79	DULUX EIs meet CSA, FCC and UL requirements.
80	Caution: DULUX EL units cannot be used on dimming circuits, emergency exit fixtures or lights, electronic timers, photocells, lighted switches or any other switches that do not meet UL20 Sec. 7.6.15. In outdoor applications, use only in enclosed fixtures to avoid exposure to weather. Use only on 120V, 60 Hz circuits. Never disassemble or modify lamp. Install or remove unit from fixture by grasping plastic base. Best performance achieved when operated at 77degrees F (25 degrees C). 40 Watt lamp is designed for base down orientation only.
81	Caution: DULUX EL Circline units cannot be used on dimming circuits, emergency exit fixtures or lights, electronic timers, photocells or lighted switches. In outdoor applications, use only in enclosed fixtures to avoid exposure to weather. Use only on 120V, 60 Hz circuits.
82	WARNING: To prevent possible serious injury, eyes and skin should not be exposed to direct or reflected ultraviolet power emitted by this lamp. This lamp is in Risk Group 3 per ANSI/IESNA RP-27.3-96. Adequate protection should be provided by clothing, gloves, opaque materials, and ordinary window glass. Although this lamp will operate in standard fluorescent fixtures, it should not be used for general lighting applications.
83	Mean lumens at 8,000 hours (40% of 20,000 hours for comparison to standard OCTRON and F40 rapid start lamps). The lumen maintenance factor at 40% of average rated life (9,600 hours) is 94%.
84	The lumen maintenance factor used to determine the mean lumens value was 90%, measured at 40% of the average rated life, 15,000 hours. The lumen maintenance factor at 4,000-4,800 hours (for comparison to F96T12 HO and F96T12 Slimline instant start lamps) is 91%.
85	The lumen maintenance factor used to determine the mean lumen value was 95%. This is the lamp lumen maintenance factor at 6000 hours, 40% of 15,000 hours. It was used to allow comparison to standard OCTRON(R) lamps with an average rated life of 15000 hours. The lamp lumen maintenance factor at 40% of the 18,000 hour average rated life of this lamp, 7200 hours, would be 94%.
86	When base pins or R.D.C. bases are horizontal, window opening is centered to either side.
87	The lamp lumen maintenance factor used to determine the mean lumen value was 95%. This is the lamp lumen maintenance factor at 8,000 hours, 40% of 20,000 hours. It was used to allow comparison to standard OCTRON(R) lamps with an average rated life of 20,000 hours. The lamp lumen maintenance factor at 40% of the 24,000 hour average rated life of this lamp, 9600 hours, would be 94%.
88	Low temperature performance rated at 35 degrees F ambient.
89	Cool White lamp with 30 degree aperture (Power Beam).
90	Blacklight lamp with 180 degree reflector>
91	Labeled for cold temperature (below 60 degrees F) operation only per EPACT.
92	Under ideal conditions, an average rated life of 10,000 hours at 3 hours/start is possible.
93	The 30,000 hour average rated life of the F017/800XPS/ECO and F025/800XPS/ECO OCTRON(R) lamps is based on operation at 3 hours start on a QUICKTRONIC(R) Programmed Start ballast. If operated on other ballasts for T8 OCTRON lamps, lamp life will be 30,000 hours for rapid start operation, and 18,000 hours for instant start operation at 3 hours per start.
94	The lamp lumen maintenance factor used to determine the mean lumen value was 95%. This is the lamp lumen maintenance factor at 8000 hours, 40% of 20,000 hours. It was used for comparison to standard OCTRON(R) lamps with an average rated life of 20,000 hours. The lamp lumen maintenance factor at 40% of 24,000 hours, 9600 hours, would be 94%; the lamp lumen maintenance factor at 40% of 30,000 hours, 12,000 hours, would be 93%
95	Recommended to be used on any F32 T8 Instant Start circuit. It is not recommended to be used:(1) with Rapid Start circuits unless the open circuit voltage is greater than 550V, (2) at lamp ambient temperatures below 60 degrees F or in drafty locations, (3) on dimming ballast or (4) inverter operated emergency lighting systems unless any of the above equipment is specifically listed for use with the OCTRON(R) SUPER-SAVER(R) 28 or 30 watt, 4 foot or 30W U-bent T8 lamp. Any of the above situations could result in lamp starting and stabilization problems



## SYMBOLS & FOOTNOTES FOR FLUORESCENT LAMPS

Footnote	Description
96	SAFELINE lamps satisfy the criteria of having a non-shattering covering for prevention of glass and other lamp components in your product by containment within the safety coating material. The covering must be intact or the lamp must be replaced to be in compliance. An onsite inspector will require correction if the lamps are installed improperly or not maintained properly.
97	Average life rating at 12 hours operation per start is 18,000 hours.
98	SAFELINE lamps are intended for indoor use only. Lamps must be used in ambient temperatures below 135 degrees F. The coating is designed to withstand constant operating temperatures up to 239 degrees F and has a melting point in excess of 500 degrees F. Lamps must be used with sockets that provide adequate lamp pin to socket contact. Lamps must not be used with defective ballasts sockets, or fixtures with improper wiring.
99	CAUTION: This lamp emits ultraviolet (UV) power during operation and is in Risk Group 1 per ANSI/IESNA RP-27.3-96. Exposure at less than 0.25 meters (10 inches) should be limited; for example exposure at 0.14m (6 inches) should not exceed 4 hours in an 8 hour interval (see ANSI/IESNA RP-27.1-96). Certain medications and chemicals can increase an individual's sensitivity. Consult your physician for specific information. Protective eyewear should be worn in occupational situations involving long term exposure in close proximity to the lamp. This lamp is not intended and should not be used for diagnostic, therapeutic or cosmetic purposes.
100	WARNING: ICETRON® Inductively Coupled Electrodeless Fluorescent lamp. Read these warnings and instructions before installing and using this lamp. 1. This lamp operates at a higher temperature (130 C) than standard fluorescent lamps. To avoid the possibility of minor skin burns, do not touch lamp or metal mounting brackets during operation and allow sufficient cooling time prior to servicing, handling, or replacing lamp. 2. This lamp generates electric and magnetic fields during operation. The electric and magnetic fields generated by this lamp during operation in typical lighting applications do not pose exposure risks relative to the limits documented in ANSI C95.1. 3. To prevent electric shock, shut off the main power to the fixture and allow at least two minutes for ballast voltage to discharge before attempting to service or replace lamp. 4. To obtain optimum safety and system performance, use only with OSRAM SYLVANIA ballast. 5. To avoid potential electric shock hazard, do not use lamp if wires or insulation are cut or pulled out of connector.
101	WARNING: ICETRON® Inductively Coupled Electrodeless Fluorescent lamp. Read these warnings and instructions before installing and using this lamp. Instructions for Installation and Use. 1) To avoid premature lamp or ballast failure and ensure proper lamp, ballast, and system performance, make sure lamp, ballast, and fixture are properly installed. Electrical interconnects, electrical grounds, thermal management, and heatsinking specifications and requirements must be fully adhered to in all applications. (See OSRAM SYLVANIA ICETRON DESIGN GUIDE.) 2. Do not alter the electrical connector on lamp and/or ballast. To do so may adversely affect lamp operation, ballast life, and/or emission of EMI (electromagnetic interference). 3. This product may cause interference with radios, cordless telephones, and remote control devices. If interference occurs, relocate the radios, cordless telephones, and/or remote control devices away from this product.
102	CAUTION: This lamp emits ultraviolet (UV) power during operation and is in Risk Group 1 per ANSI/IESNA RP-27.3-96. Exposure at less than 0.3 meters (12 inches) should be limited; for example exposure at 0.14m (6 inches) should not exceed 4 hours in an 8 hour interval (see ANSI/IESNA RP-27.1-96). Certain medications and chemicals can increase an individual's sensitivity. Consult your physician for specific information. Protective eyewear should be worn in occupational situations involving long term exposure in close proximity to the lamp. This lamp is not intended and should not be used for diagnostic, therapeutic or cosmetic purposes.
103	CAUTION: This lamp emits ultraviolet (UV) power during operation and is in Risk Group 1 per ANSI/IESNA RP-27.3-96. Exposure at less than 0.35 meters (14 inches) should be limited; for example exposure at 0.25m (10 inches) should not exceed 4 hours in an 8 hour interval (see ANSI/IESNA RP-27.1-96). Certain medications and chemicals can increase an individual's sensitivity. Consult your physician for specific information. Protective eyewear should be worn in occupational situations involving long term exposure in close proximity to the lamp. This lamp is not intended and should not be used for diagnostic, therapeutic or cosmetic purposes.
104	CAUTION: This lamp emits ultraviolet (UV) power during operation and is in Risk Group 2 per ANSI/IESNA RP-27.3-96. Exposure at less than 0.45 meters (18 inches) should be limited; for example exposure at 0.3m (12 inches) should not exceed 4 hours in an 8 hour interval (see ANSI/IESNA RP-27.1-96). Certain medications and chemicals can increase an individual's sensitivity. Consult your physician for specific information. Protective eyewear should be worn in occupational situations involving long term exposure in close proximity to the lamp. This lamp is not intended and should not be used for diagnostic, therapeutic or cosmetic purposes.
105	CAUTION: This lamp emits ultraviolet (UV) power during operation and is in Risk Group 2 per ANSI/IESNA RP-27.3-96. Exposure at less than 0.55 meters (22 inches) should be limited; for example exposure at 0.4m (16 inches) should not exceed 4 hours in an 8 hour interval (see ANSI/IESNA RP-27.1-96). Certain medications and chemicals can increase an individual's sensitivity. Consult your physician for specific information. Protective eyewear should be worn in occupational situations involving long term exposure in close proximity to the lamp. This lamp is not intended and should not be used for diagnostic, therapeutic or cosmetic purposes.
106	CAUTION: This lamp emits ultraviolet (UV) power during operation and is in Risk Group 2 per ANSI/IESNA RP-27.3-96. Exposure at less than 0.65 meters (26 inches) should be limited; for example exposure at 0.45m (18 inches) should not exceed 4 hours in an 8 hour interval (see ANSI/IESNA RP-27.1-96). Certain medications and chemicals can increase an individual's sensitivity. Consult your physician for specific information. Protective eyewear should be worn in occupational situations involving long term exposure in close proximity to the lamp. This lamp is not intended and should not be used for diagnostic, therapeutic or cosmetic purposes.
107	CAUTION: This lamp emits ultraviolet (UV) power during operation and is in Risk Group 2 per ANSI/IESNA RP-27.3-96. Exposure at less than 0.7 meters (28 inches) should be limited; for example exposure at 0.54m (20 inches) should not exceed 4 hours in an 8 hour interval (see ANSI/IESNA RP-27.1-96). Certain medications and chemicals can increase an individual's sensitivity. Consult your physician for specific information. Protective eyewear should be worn in occupational situations involving long term exposure in close proximity to the lamp. This lamp is not intended and should not be used for diagnostic, therapeutic or cosmetic purposes.

## SYMBOLS & FOOTNOTES FOR FLUORESCENT LAMPS

Footnote	Description
108	Average life rating at 12 hours operation per start is 15,000 hours.
109	CAUTION: This lamp emits ultraviolet (UV) power during operation and is in Risk Group 2 per ANSI/IESNA RP-27.3-96. Exposure at less than 0.75 meters (30 inches) should be limited; for example exposure at 0.55m (22 inches) should not exceed 4 hours in an 8 hour interval (see ANSI/IESNA RP-27.1-96). Certain medications and chemicals can increase an individual's sensitivity. Consult your physician for specific information. Protective eyewear should be worn in occupational situations involving long term exposure in close proximity to the lamp. This lamp is not intended and should not be used for diagnostic, therapeutic or cosmetic purposes.
110	CAUTION: This lamp emits ultraviolet (UV) power during operation and is in Risk Group 2 per ANSI/IESNA RP-27.3-96. Exposure at less than 1.0 meters (39 inches) should be limited; for example exposure at 0.64m (24 inches) should not exceed 4 hours in an 8 hour interval (see ANSI/IESNA RP-27.1-96). Certain medications and chemicals can increase an individual's sensitivity. Consult your physician for specific information. Protective eyewear should be worn in occupational situations involving long term exposure in close proximity to the lamp. This lamp is not intended and should not be used for diagnostic, therapeutic or cosmetic purposes.
111	CAUTION: This lamp emits ultraviolet (UV) power during operation and is in Risk Group 2 per ANSI/IESNA RP-27.3-96. Exposure at less than 0.6 meters (24 inches) should be limited; for example exposure at 0.45m (18 inches) should not exceed 4 hours in an 8 hour interval (see ANSI/IESNA RP-27.1-96). Certain medications and chemicals can increase an individual's sensitivity. Consult your physician for specific information. Protective eyewear should be worn in occupational situations involving long term exposure in close proximity to the lamp. This lamp is not intended and should not be used for diagnostic, therapeutic or cosmetic purposes.
112	CAUTION: This lamp emits ultraviolet (UV) power during operation and is in Risk Group 2 per ANSI/IESNA RP-27.3-96. Exposure at less than 0.8 meters (31 inches) should be limited; for example exposure at 0.55m (22 inches) should not exceed 4 hours in an 8 hour interval (see ANSI/IESNA RP-27.1-96). Certain medications and chemicals can increase an individual's sensitivity. Consult your physician for specific information. Protective eyewear should be worn in occupational situations involving long term exposure in close proximity to the lamp. This lamp is not intended and should not be used for diagnostic, therapeutic or cosmetic purposes.
113	CAUTION: This lamp emits ultraviolet (UV) power during operation and is in Risk Group 2 per ANSI/IESNA RP-27.3-96. Exposure at less than 2.0 meters (79 inches) should be limited; for example exposure at 1.4m (55 inches) should not exceed 4 hours in an 8 hour interval (see ANSI/IESNA RP-27.1-96). Certain medications and chemicals can increase an individual's sensitivity. Consult your physician for specific information. Protective eyewear should be worn in occupational situations involving long term exposure in close proximity to the lamp. This lamp is not intended and should not be used for diagnostic, therapeutic or cosmetic purposes.
114	CAUTION: This lamp emits ultraviolet (UV) power during operation and is in Risk Group 1 per ANSI/IESNA RP-27.3-96. Exposure at less than 0.3 meters (12 inches) should be limited; for example exposure at 0.2m (8 inches) should not exceed 4 hours in an 8 hour interval (see ANSI/IESNA RP-27.1-96). Certain medications and chemicals can increase an individual's sensitivity. Consult your physician for specific information. Protective eyewear should be worn in occupational situations involving long term exposure in close proximity to the lamp. This lamp is not intended and should not be used for diagnostic, therapeutic or cosmetic purposes.
115	CAUTION: This lamp emits ultraviolet (UV) power during operation and is in Risk Group 1 per ANSI/IESNA RP-27.3-96. Exposure at less than 0.3 meters (12 inches) should be limited; for example exposure at 0.15m (6 inches) should not exceed 4 hours in an 8 hour interval (see ANSI/IESNA RP-27.1-96). Certain medications and chemicals can increase an individual's sensitivity. Consult your physician for specific information. Protective eyewear should be worn in occupational situations involving long term exposure in close proximity to the lamp. This lamp is not intended and should not be used for diagnostic, therapeutic or cosmetic purposes.
116	A fluorescent jacketed lamp consists of a T12 (1 1/2" diameter) lamp enclosed inside a T14.5 (1 13/16" diameter) glass jacket. A jacketed fluorescent lamp operates efficiently over a wide range of climatic conditions, including extremes of cold and strong wind in which an unjacketed (bare) lamp would be inefficient or inoperable. The jacket size provides the clearance necessary to minimize damaging lamp-jacket contact; narrow bands of rubber placed between the lamp and the jacket further prevent contact. A weather-tight seal is formed by neoprene rubber end caps.
117	Mean lumens at 7,200 hours (40% of 18,000 hour average rated life) equal 4,371. For comparison to an F72T12 Slimline lamp with an average rated life of 12,000 hours use a mean lumen value of 4418 based on 95% lumen maintenance at 4,800 hours,(40% of 12,000 hours).
118	Use only with electronic ballasts which have been specifically designed to operate T2 miniature fluorescent lamps and to reliably and safely control all lamp operating modes including end-of-lamp-life sensing circuitry. If a non-conforming ballast is used, very high temperatures (350 degrees C typical) may be generated at the ends of the lamp especially during end-of-lamp-life operation, causing the lamp to crack and resulting in potential fire, electrical shock, or burn hazards.
119	The life rating of FO32/700/ECO OCTRON® lamps operated on rapid start ballasts is 25,000 hours. The life rating of FO32/700/ECO OCTRON lamps operated on instant start ballasts is 24,000 hours.

# Manufacturers' Cross Reference Guide (continued)

## FLUORESCENT LAMPS

SYLVANIA	GE	PHILIPS
<b>OCTRON®</b>		
F017/830/ECO	F17T8/SPX30/ECO	F17T8/TL830/ALTO
F017/835/ECO	F17T8/SPX35/ECO	F17T8/TL835/ALTO
F017/841/ECO	F17T8/SPX41/ECO	F17T8/TL841/ALTO
		F17T8/TL850/ALTO
F017/827/XP/ECO		
F017/830/XP/ECO	F17T8/XL/SPX30/ECO	F17T8/TL830/PLUS/ALTO
F017/835/XP/ECO	F17T8/XL/SPX35/ECO	F17T8/TL835/PLUS/ALTO
F017/841/XP/ECO	F17T8/XL/SPX41/ECO	F17T8/TL841/PLUS/ALTO
F017/850/XP/ECO	F17T8/XL/SPX50/ECO	F17T8/TL850/PLUS/ALTO
F017/865/XP/ECO	F17T8/XL/SPX65/ECO	F17T8/TL865 /PLUS/ALTO
F017/830XPS/ECO		
F017/835XPS/ECO		
F017/841XPS/ECO		
F025/830/ECO	F25T8/SPX30/ECO	F25T8/TL830/ALTO
F025/835/ECO	F25T8/SPX35/ECO	F25T8/TL835/ALTO
F025/841/ECO	F25T8/SPX41/ECO	F25T8/TL841/ALTO
		F25T8/TL850/ALTO
F025/827/XP/ECO		
F025/830/XP/ECO	F25T8/XP/SPX30/ECO	F25T8/TL830/PLUS/ALTO
F025/835/XP/ECO	F25T8/XP/SPX35/ECO	F25T8/TL835/PLUS/ALTO
F025/841/XP/ECO	F25T8/XP/SPX41/ECO	F25T8/TL841/PLUS/ALTO
F025/850/XP/ECO	F25T8/XP/SPX50/ECO	F25T8/TL850/PLUS/ALTO
F025/865/XP/ECO	F25T8/XP/SPX65/ECO	F25T8/TL865/PLUS/ALTO
F025/830XPS/ECO		
F025/835XPS/ECO		
F025/841XPS/ECO		
F032/25W/830XP/SS/ECO		F32T8/ADV830/XEW/LL/ALTO 25Watt
F032/25W/835XP/SS/ECO		F32T8/ADV835/XEW/LL/ALTO 25Watt
F032/25W/841XP/SS/ECO		F32T8/ADV841/XEW/LL/ALTO 25Watt
F032/25W/850XP/SS/ECO		F32T8/ADV850/XEW/LL/ALTO 25Watt
F028/830XP/SS/ECO	F28T8/SP30UMX/ECO	F32T8/ADV830/EW/LL/ALTO 28Watt
F028/835XP/SS/ECO	F28T8/SP35UMX/ECO	F32T8/ADV835/EW/LL/ALTO 28Watt
F028/841XP/SS/ECO	F28T8/SP41UMX/ECO	F32T8/ADV841/EW/LL/ALTO 28Watt
F028/850XP/SS/ECO	F28T8/SP50UMX/ECO	F32T8/ADV850/EW/LL/ALTO 28Watt
F030/830XP/SS/ECO	F32T8XL/SP30/WM/ECO	F32T8/ADV830/EW/LL/ALTO 30Watt
F030/835XP/SS/ECO	F32T8XL/SP35/WM/ECO	F32T8/ADV835/EW/LL/ALTO 30Watt
F030/841XP/SS/ECO	F32T8XL/SP41/WM/ECO	F32T8/ADV841/EW/LL/ALTO 30Watt
F030/850XP/SS/ECO	F32T8XL/SP50/WM/ECO	F32T8/ADV850/EW/LL/ALTO 30Watt
F032/730/ECO	F32T8/SP30/ECO	F32T8/TL730/ALTO
F032/735/ECO	F32T8/SP35/ECO	F32T8/TL735/ALTO
F032/741/ECO	F32T8/SP41/ECO	F32T8/TL741/ALTO
F032/750/ECO	F32T8/SP50/ECO	F32T8/TL750/ALTO
F032/765/ECO	F32T8/SP65/ECO	
F032/730/XP/ECO	F32T8/XL/SP30/ECO	F32T8/TL730/PLUS/ALTO
F032/735/XP/ECO	F32T8/XL/SP35/ECO	F32T8/TL735/PLUS/ALTO
F032/741/XP/ECO	F32T8/XL/SP41/ECO	F32T8/TL741/PLUS/ALTO
		F32T8/TL750/PLUS/ALTO
F032/830/ECO	F32T8/SPX30/ECO	F32T8/TL830/ALTO
F032/835/ECO	F32T8/SPX35/ECO	F32T8/TL835/ALTO
F032/841/ECO	F32T8/SPX41/ECO	F32T8/TL841/ALTO
F032/850/ECO	F32T8/SPX50/ECO	F32T8/TL850/ALTO
F032/827/XP/ECO	-	-
F032/830/XP/ECO	F32T8/XL/SPX30/ECO	F32T8/TL830 PLUS/ALTO
F032/835/XP/ECO	F32T8/XL/SPX35/ECO	F32T8/TL835 PLUS/ALTO
F032/841/XP/ECO	F32T8/XL/SPX41/ECO	F32T8/TL841 PLUS/ALTO
F032/850/XP/ECO	F32T8/XL/SPX50/ECO	F32T8/TL850 PLUS/ALTO
F032/865/XP/ECO	F32T8/XL/SPX65/ECO	F32T8/TL865 PLUS/ALTO
F032/830XPS/ECO	F32T8SXL/SPX30/ECO	
F032/835XPS/ECO	F32T8SXL/SPX35/ECO	
F032/841XPS/ECO	F32T8SXL/SPX41/ECO	
F032/830XPS/ECO	F32T8/XL/SPX30/HL/ECO	F32T8/ADV830/ALTO
F032/835XPS/ECO	F32T8/XL/SPX35/HL/ECO	F32T8/ADV835/ALTO
F032/841XPS/ECO	F32T8/XL/SPX41/HL/ECO	F32T8/ADV841/ALTO
F032/850XPS/ECO	F32T8/XL/SPX50/HL/ECO	F32T8/ADV850/ALTO
F032/865XPS/ECO		

# Manufacturers' Cross Reference (continued)

## FLUORESCENT LAMPS

SYLVANIA	GE	PHILIPS
<b>OCTRON®</b>		
F040/830/ECO	F40T8/SPX30	F40T8/TL830/ALTO
F040/835/ECO	F40T8/SPX35	F40T8/TL835/ALTO
F040/841/ECO	F40T8/SPX41	F40T8/TL841/ALTO
F040/830/XP/ECO	-	-
F040/835/XP/ECO	-	-
F040/841/XP/ECO	-	-
F096/830XP/SS/ECO	F96T8/XL/SP30/WM	
F096/835XP/SS/ECO	F96T8/XL/SP35/WM	
F096/841XP/SS/ECO	F96T8/XL/SP41/WM	
F096/830/ECO	F96T8/SPX30	F96T8/TL830/ALTO
F096/835/ECO	F96T8/SPX35	F96T8/TL835/ALTO
F096/841/ECO	F96T8/SPX41	F96T8/TL841/ALTO
F096/850/ECO	F96T8/SPX50	F96T8/TL850/ALTO
F096/830/XP/ECO	F96T8/XL/SPX30	F96T8/TL830PLUS/ALTO
F096/835/XP/ECO	F96T8/XL/SPX35	F96T8/TL835PLUS/ALTO
F096/841/XP/ECO	F96T8/XL/SPX41	F96T8/TL841PLUS/ALTO
F096/850/XP/ECO	F96T8/XL/SPX50	F96T8/TL850PLUS/ALTO
-	F96T8/SPX30/HO	F96T8/TL830/HO/PLUS
F096/835/HO	F96T8/SPX35/HO	F96T8/TL835/HO/PLUS
F096/841/HO	F96T8/SPX41/HO	F96T8/TL841/HO/PLUS
<b>OCTRON® CURVALUME®</b>		
FB016/830	-	-
FB016/835	-	-
FB016/841	-	-
FB016/865/XP	-	-
FB024/830	-	-
FB024/835	-	-
FB024/841	-	-
FB031/830	F31T8/SPX30/U	-
FB031/835	F31T8/SPX35/U	-
FB031/841	F31T8/SPX41/U	-
FB029/830/XP/SS/ECO		
FB029/835/XP/SS/ECO		
FB029/841/XP/SS/ECO		
FB031/830/XP/ECO	-	-
FB031/835/XP/ECO	-	-
FB031/841/XP/ECO	-	-
FB030/830/XP/6/SS/ECO		
FB030/835/XP/6/SS/ECO		
FB030/841/XP/6/SS/ECO		
FB032/830/6/ECO	F32T8/SPX30/U/6	FB32T8/TL830/6/ALTO
FB032/835/6/ECO	F32T8/SPX35/U/6	FB32T8/TL835/6/ALTO
FB032/841/6/ECO	F32T8/SPX41/U/6	FB32T8/TL841/6/ALTO
		FB32T8/TL850/6/ALTO
FB032/830/6/XP/ECO	-	-
FB032/835/6/XP/ECO	-	-
FB032/841/6/XP/ECO	-	-
<b>PENTRON® &amp; PENTRON® HO</b>		
FP14/830/ECO	F14W/T5/830/ECO	F14T5/830/ALTO
FP14/835/ECO	F14W/T5/835/ECO	F14T5/835/ALTO
FP14/841/ECO	F14W/T5/841/ECO	F14T5/841/ALTO
	F14W/T5/850/ECO	
FP14/865/ECO	F14W/T5/865/ECO	
FP21/830/ECO	F21W/T5/830/ECO	F21T5/830/ALTO
FP21/835/ECO	F21W/T5/835/ECO	F21T5/835/ALTO
FP21/841/ECO	F21W/T5/841/ECO	F21T5/841/ALTO
	F21W/T5/850/ECO	
FP21/865/ECO	F21W/T5/865/ECO	
FP28/830/ECO	F28W/T5/830/ECO	F28T5/830/ALTO
FP28/835/ECO	F28W/T5/835/ECO	F28T5/835/ALTO
FP28/841/ECO	F28W/T5/841/ECO	F28T5/841/ALTO
FP21/850/ECO	F28W/T5/850/ECO	
FP21/865/ECO	F28W/T5/865/ECO	
FP35/830/ECO	F35W/T5/830/ECO	F35T5/830
FP35/835/ECO	F35W/T5/835/ECO	F35T5/835

# Manufacturers' Cross Reference Guide (continued)

## FLUORESCENT LAMPS

SYLVANIA	GE	PHILIPS
<b>OCTRON® CURVALUME®</b>		
FP35/841/ECO	F35W/T5/841/ECO	F35T5/841
	F35W/T5/850/ECO	
	F35W/T5/865/ECO	
FP24/830/HO/ECO	F24W/T5/830/ECO	F24T5/830/HO/ALTO
FP24/835/HO/ECO	F24W/T5/835/ECO	F24T5/835/HO/ALTO
FP24/841/HO/ECO	F24W/T5/841/ECO	F24T5/841/HO/ALTO
	F24W/T5/850/ECO	
	F24W/T5/865/ECO	
FP39/830/HO/ECO	F39W/T5/830/ECO	FP39/830/HO/ECO/ALTO
FP39/835/HO/ECO	F39W/T5/835/ECO	FP39/835/HO/ECO/ALTO
FP39/841/HO/ECO	F39W/T5/841/ECO	FP39/841/HO/ECO/ALTO
	F39W/T5/850/ECO	
	F39W/T5/865/ECO	
FP54/830/HO/ECO	F54W/T5/830/ECO	F54T5/830/HO/ALTO
FP54/835/HO/ECO	F54W/T5/835/ECO	F54T5/835/HO/ALTO
FP54/841/HO/ECO	F54W/T5/841/ECO	F54T5/841/HO/ALTO
FP54/850/HO/ECO	F54W/T5/850/ECO	F54T5/850/HO/ALTO
FP54/865/HO/ECO	F54W/T5/865/ECO	F54T5/865/HO/ALTO
FP54/835/C/HO/ECO		
FP54/841/C/HO/ECO		
FP54/850/C/HO/ECO		
FP80/830/HO/ECO	F80W/T5/830/ECO	F80T5/830/HO
FP80/835/HO/ECO	F80W/T5/835/ECO	F80T5/835/HO
FP80/841/HO/ECO	F80W/T5/841/ECO	F80T5/841/HO
	F54W/T5/850/ECO	
	F54W/T5/865/ECO	
<b>PENTRON® CIRCLINE</b>		
FPC22/830	-	TL5C 22W/830
FPC22/835	-	TL5C 22W/831
FPC22/841	-	TL5C 22W/832
FPC40/830	-	TL5C 40W/833
FPC40/835	-	TL5C 40W/834
FPC40/841	-	TL5C 40W/835
FPC55/830/HO	-	TL5C 55W/833
FPC55/835/HO	-	TL5C 55W/834
FPC55/841/HO	-	TL5C 55W/835
<b>F40 TYPES (STD &amp; SS)</b>		
F34/D30/SS/ECO	F34/SP30/RS/WM/ECO	
F34/D35/SS/ECO	F34/SP35/RS/WM/ECO	
F34/D41/SS/ECO	F34/SP41/RS/WM/ECO	
F34/D830/SS/ECO	F34/SPX30/RS/WM/ECO	F34/830/RS/EW/ALTO
F34/D835/SS/ECO	F34/SPX35/RS/WM/ECO	F34/835/RS/EW/ALTO
F34/D841/SS/ECO	F34/SPX41/RS/WM/ECO	F34/841/RS/EW/ALTO
		F34/850/RS/EW/ALTO
F40/D30/ECO	F40/SP30/RS/ECO	F40/SPEC30/RS/ALTO
F40/D35/ECO	F40/SP35/RS/ECO	F40/SPEC35/RS/ALTO
F40/D41/ECO	F40/SP41/RS/ECO	F40/SPEC41/RS/ALTO
F40/D830/ECO	F40/SPX30/RS/ECO	F40/830/8RS/ALTO
F40/D835/ECO	F40/SPX35/RS/ECO	F40/835/RS/ALTO
F40/D841/ECO	F40/SPX41/RS/ECO	F40/841/RS/ALTO
-	F40/XL/SP30, 35, 41	
-	F40/XL/SPX30, 35, 41, 50	-
<b>CURVALUME® 3"</b>		
-	F40/SP30/U/3	-
-	F40/SP41/U/3	-
<b>CURVALUME® 6"</b>		
FB34/D30/6/SS	-	FB34/SPEC30/6/EW/ALTO
FB34/D35/6/SS	-	FB34/SPEC35/6/EW/ALTO
FB34/D41/6/SS	-	FB34/SPEC41/6/EW/ALTO
FB40/D30/6	F40/SP30/U/6	FB40/SPEC30/6/ALTO
FB40/D30/6	F40/SP35/U/6	FB40/SPEC35/6/ALTO
FB40/D41/6	F40/SP41/U/6	FB40/SPEC41/6/ALTO
FB40/D830/6	F40/SPX30/U/6	FB40/30U/6/ALTO
-	F40/SPX35/U/6	FB40/35U/6/ALTO
-	-	FB40/41U/6/ALTO

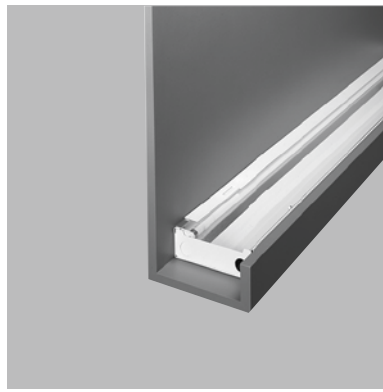
# Manufacturers' Cross Reference (continued)

## FLUORESCENT LAMPS

SYLVANIA	GE	PHILIPS
<b>SLIMLINE</b>		
-	F96T12/SP35/WMP	-
F96T12/D30/SS/ECO	F96T12/SP30/WM/ECO	
F96T12/D35/SS/ECO	F96T12/SP35/WM/ECO	
F96T12/D41/SS/ECO	F96T12/SP41/WM/ECO	
F96T12/D830/SS/ECO	F96T12/SPX30/WM/ECO	F96T12/830/EW/ALTO
F96T12/D835/SS/ECO	F96T12/SPX35/WM/ECO	F96T12/835/EW/ALTO
F96T12/D841/SS/ECO	F96T12/SPX41/WM/ECO	F96T12/841/EW/ALTO
-	F96T12/XL/SP35/WM	-
-	F96T12/XL/SP41/WM	-
F96T12/D30/ECO	F96T12/SP30/ECO	
F96T12/D35/ECO	F96T12/SP35/ECO	
F96T12/D41/ECO	F96T12/SP41/ECO	
F96T12/D830/ECO	F96T12/SPX30/ECO	F96T12/830/ALTO
F96T12/D835/ECO	F96T12/SPX35/ECO	F96T12/835/ALTO
F96T12/D841/ECO	F96T12/SPX41/ECO	F96T12/841/ALTO
-	F96T12/XL/SP35, 41	-
-	F96T12/XL/SPX35, 41, 50	-
<b>HIGH OUTPUT</b>		
F72T12/D830/HO	F72T12/SPX30/HO	F72T12/30U/HO
-	-	
F96T12/D35/HO/SS	F96T12/SP35/HO/WM	
F96T12/D41/HO/SS	F96T12/SP41/HO/WM	
F96T12/D830/HO/SS	F96T12/SPX830/HO/WM	F96T12/830/HO/EW/ALTO
F96T12/D835/HO/SS	F96T12/SPX35/HO/WM	F96T12/835/HO/EW/ALTO
F96T12/D841/HO/SS	F96T12/SPX41/HO/WM	F96T12/841/HO/EW/ALTO
F96T12/D30/HO	F96T12/SP30/HO	
F96T12/D35/HO	F96T12/SP35/HO	
F96T12/D41/HO	F96T12/SP41/HO	
F96T12/D830/HO	F96T12/SPX830/HO	F96T12/830/HO/ALTO
F96T12/D835/HO	F96T12/SPX35/HO	F96T12/835/HO/ALTO
F96T12/D841/HO	F96T12/SPX41/HO	F96T12/841/HO/ALTO
<b>APPLIANCE</b>		
F18T8CW/K24	F24T8/CW/4	
F18T8CW/K26	F26T8/CW/4	F16T8/CW/26
F18T8CW/K28	F28T8/CW/4	F17T8/CW/28
F18T8CW/K30	F30T8/CW/4	F18T8/CW/30/ALTO
F18T8/D/K26	-	-
<b>OTHER RAPID START</b>		
F25T12/D30/RS/SS	F25T12/SP30/RS/WM	-
F25T12/D35/RS/SS	F25T12/SP35/RS/WM	-
F30T12/D35/RS	F30T12/SP35/RS	F30T12/SPEC35/RS
F30T12/D41/RS	F30T12/SP41/RS	F30T12/SPEC41/RS
F30T12/D830/RS	F30T12/SPX30/RS	F30T12/30U/RS
F30T12/D835/RS	F30T12/SPX35/RS	F30T12/35U/RS

FLUORESCENT

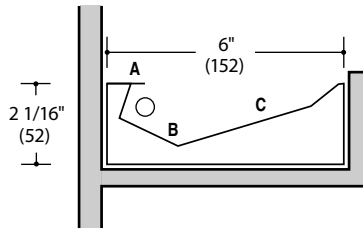




Type:  
Project:

**Cove-25™**  
CC-AI-2500  
Concealed Cove System

## Specifications



- A** Luminance Control Deflector™ minimizes socket shadows.
- B** High-reflectance aluminum for maximum horizontal light projection.
- C** High-reflectance white reflector for efficient indirect distribution.

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


**REFLECTORS.** Angled reflector is die-formed high-reflectance aluminum, precisely shaped for maximum horizontal light projection. Straight sloped reflector is 24-gauge steel, finished in high-reflectance white for maximum indirect light distribution. Luminance Control Deflector™ (LCD), finished in high reflectance white, reduces wall brightness directly above fixture and minimizes socket shadows between fixtures.

**LAMPING.** Available in one-lamp T5 or T5HO.

**BALLAST.** Low-profile Electronic Ballast (LP/ELB), high power factor, thermally protected Class P, Sound Rated A, less than 10% THD, manufactured by a UL Listed manufacturer, as available, determined by Litecontrol. Ballasts with a voltage range of 120 to 277 will be used when fixture configuration and ballast availability allow. The minimum number of ballasts will be used.

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

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

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

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

## Ordering guide

Product, lamping, & length						Options				
CC -	AI -	25	1	4	T5HO -	CWM -	LP/ELB -	1CWQ -	LP/EF -	120
Mounting	Distribution	Series	Lamp Count	Nominal Length(ft)	Lamp Type	Color	Ballast options	Pre-wiring	Other options	Volts
CC Concealed Cove	AI Asymmetric indirect	25	1 →	3	T5HO T5	CWM (Matte White) is standard	LP/ELB is standard  LPD/ELB  see Ballast options	1CWQ	LP/EF F WKC/NP WKC/NP AMA5 AMA10  see Other options	120 277
			1 →	4						
			2 →	6						
			2 →	8						
			see notes							

**notes:**

Lamp Count = total number of lamps in the fixture

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

### Cross-section lamping



1-T5 or T5HO

CC-AI-2514T5HO-CWM-LP/ELB-1CWQ-LP/EF-120 is a typical catalog number for a 1-lamp (1 lamp in cross-section), 4-foot long, high-output T5 fixture, Matte White finish, low-profile electronic ballast, pre-wired with single-circuit branch wiring, low-profile emergency fluorescent ballast, 120 volts.

### Questions to Ask

1. 120 or 277 volt?
2. Row information, including desired fixture lengths?
3. Other options?



## Ballast options

Specify in place of **LP/ELB**:

**LPD/ELB** Low-profile Dimming Ballast. Manufactured by a UL Listed manufacturer. Consult factory for availability.

## Other options

**LP/EF** Low-profile Emergency Fluorescent Ballast. Battery-powered ballast from a UL Listed manufacturer will operate one T5 or T5HO lamp for 1 1/2 hours.

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

**WKC/WP** Corner Wiring Kit. With quick-connects.

**WKC/NP** Corner Wiring Kit. Without quick-connects.

**AMA** Adjustable Mounting Angle. Quick-attach component to tilt housing either **5°** or **10°**

## Planning for installation

Cove provided by others. Interior cove dimensions should allow for 2 1/16" x 6" fixture cross-section to fit within cove, taking into consideration as-built tolerances. For maximum efficiency, wall and ceiling above cove should have matte surfaces with high reflectances. See design guidelines below. Maximum fixture weight per foot is two and a half pounds.

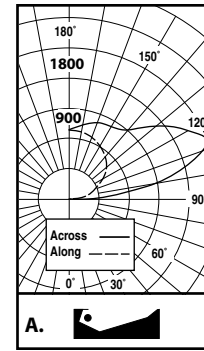
### Corner Wiring Kit

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

### Adjustable Mounting Angle (AMA) Option

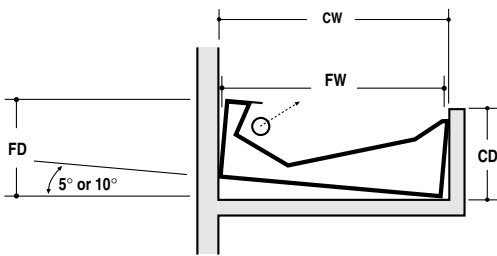
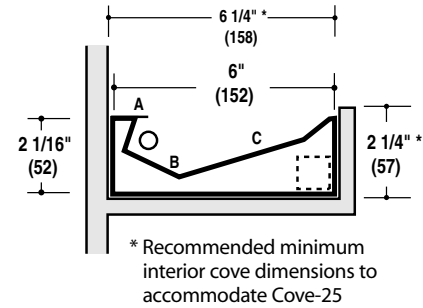
With this option, you can get an even lower beam throw, projecting light at lower angles resulting in a greater amount of light directed into the space. A simple, snap-on accessory is used to tilt the fixture an additional 5° or 10° above horizontal. Room geometry and cove location are considerations when using this option. A simple cross-section sketch of the space, drawn to scale, will determine the appropriate angle of tilt needed.

## Photometric data



**A. CC-AI-2514T5HO-LP/ELB**  
86.9% Efficiency  
ITL Certified Test Report  
#ITL49604

For complete photometric information, see website.



Angle of Tilt	Ordering Option	Fixture Depth (FD)	Fixture Width (FW)	Recommended Cove Depth (CD)	Recommended Cove Width (CW)
0	<b>(standard)</b>	2 1/16"	6"	2 1/4"	6 1/4"
5°	<b>AMA</b>	2 9/16"	6 3/16"	2 1/4"	6 1/2"
10°	<b>AMA</b>	3 1/16"	6 1/4"	2 1/4"	6 1/2"

Actual fixture lengths are sized to match T5 lamp lengths. See table below to determine total fixture and row lengths.

Nominal Fixture Length	3'	4'	6'	8'
Actual Fixture Length	34 3/8"	46 1/4"	68 5/8"	92 1/4"

## Design guidelines

For maximum illumination level flexibility, two types of lamplighting are available- standard T5 and high-output T5. For other lamplighting choices in a 3 1/8" deep x 8" wide fixture refer to Cove-30 (CC-AI-3000).

As the distance from fixture to ceiling is increased, light distribution becomes more uniform. To avoid excessive brightness on ceiling, maximize the distance from the fixture to the ceiling. A fixture with less output (i.e., standard T5) may be tolerated closer to ceiling than one with higher output (high-output T5). To best evaluate an acceptable mounting position, a mock-up is recommended.

Position fixtures along walls as desired to satisfy visual design goals. To avoid excess corner brightness, stop fixtures 7-13" short of end walls; 0-6" from outside corner. See table above for actual fixture lengths.

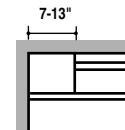
As-built cove dimensions should include tolerances to accommodate fixture. See recommended cove depth and width dimensions in table above.

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

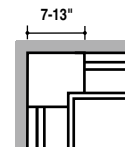
For an even lower peak output angle and better distribution, consider the Adjustable Mounting Angle (**AMA**) option. This lowers the beam throw by 5° or 10°. This should only be considered if viewing angles prevent a direct view of the raised portion of the fixture, or if a cut-off angle below horizontal is deemed acceptable.

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

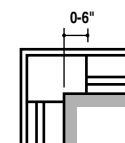
### Single row end clearance



### Inside corner positioning



### Outside corner positioning



Click on **Quick Find 25**



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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.

### 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



### 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)

<b>Job Name:</b> <input style="width: 90%; height: 20px;" type="text"/>	<b>Model Numbers:</b> <input style="width: 95%; height: 20px;" type="text"/>
<b>Job Number:</b> <input style="width: 100%; height: 20px;" type="text"/>	<input style="width: 95%; height: 20px;" type="text"/>

## Specifications

### Performance



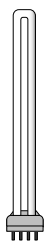
- Dimming Range: 100% to 10% measured relative light output
- Lamp Starting: programmed rapid start
- Minimum Lamp Starting Temperature: 10 °C (50 °F)
- Ambient Temperature Operating Range: 10 °C (50 °F) to 60 °C (140 °F)
- Relative Humidity: maximum 90% non-condensing
- Operating Voltage: 120 V or 277 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

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<b>Job Number:</b> <input style="width: 100%; height: 20px;" type="text"/>	<input style="width: 100%; height: 20px;" type="text"/>	<input style="width: 100%; height: 20px;" type="text"/>

### Eco-10 Ballast Models

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
<b>T5 linear</b>   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
<b>T5-HO linear high output</b>   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
<b>T5 Twin-Tube</b>   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



<b>Job Name:</b> <input type="text"/>	<b>Model Numbers:</b> <input type="text"/>	
<b>Job Number:</b> <input type="text"/>	<input type="text"/>	<input type="text"/>



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## 71627 – F54T5/830/WM/ECO

GE Ecolux® Watt-Miser® Starcoat® T5

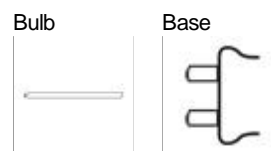


- Saves energy compared to standard wattage lamps
- Passes TCLP, which can lower disposal costs.

High Color Rendering

### GENERAL CHARACTERISTICS

Lamp type	Linear Fluorescent - Straight Linear
Bulb	T5
Base	Miniature Bi-Pin (G5)
Wattage	51
Rated Life	25000 hrs
Rated Life (rapid start) @ Time	25000 h @ 3 h 30000 h @ 12 h
Bulb Material	Soda lime
Starting Temperature (MIN)	-20
LEED-EB MR Credit	39 picograms Hg per mean lumen hour
Additional Info	Dimmable with appropriate dimming ballast., TCLP compliant


[View Larger](#)

### PHOTOMETRIC CHARACTERISTICS

Initial Lumens	5000
Mean Lumens	4600
Nominal Initial Lumens per Watt	98
Color Temperature	3000 K
Color Rendering Index (CRI)	85
S/P Ratio (Scotopic/Photopic Ratio)	1.3

### ELECTRICAL CHARACTERISTICS

Cathode Resistance Ratio - Rh/Rc (MIN)	4.25
Cathode Resistance Ratio - Rh/Rc (MAX)	6.5
Current Crest Factor (MAX)	1.7

### DIMENSIONS

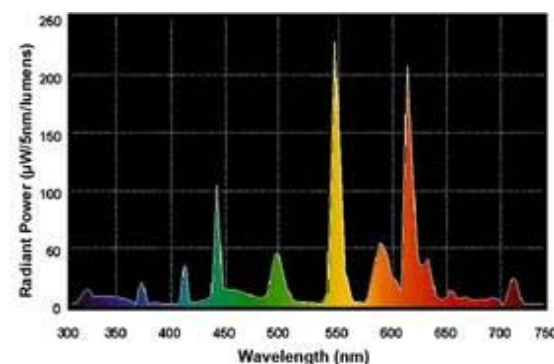
Maximum Overall Length (MOL)	45.8000 in (1163.3 mm)
Nominal Length	45.200 in (1148.0 mm)
Bulb Diameter (DIA)	0.625 in (15.8 mm)

### ADDITIONAL RESOURCES

[Catalogs](#)
[Testimonials](#)
[Disposal Policies & Recycling Information](#)

### GRAPHS & CHARTS

#### Spectral Power Distribution



Bulb Diameter (DIA) (MAX)	0.670 in (17.0 mm)
Max Base Face to Base Face (A)	45.240 in (1149.0 mm)
Face to End of Opposing Pin (B) (MIN)	45.420 in (1153.6 mm)
Face to End of Opposing Pin (B) (MAX)	45.520 in (1156.2 mm)

**PRODUCT INFORMATION**

Product Code	71627
Description	F54T5/830/WM/ECO
Standard Package	Case
Standard Package GTIN	10043168716274
Standard Package Quantity	40
Sales Unit	Unit
No Of Items Per Sales Unit	1
No Of Items Per Standard Package	40
UPC	043168716277

**COMPATIBLE GE BALLASTS**

Product Code	Description	# of Bulbs	Power Factor	Ballast Factor
<a href="#">99651</a>	GE254MVPS90-F	2	99.0	1.12
<a href="#">99652</a>	GE254MVPS90-F-42	2	99.0	1.12
<a href="#">72279</a>	GE254MVPS-D	2	99.0	1.13
<a href="#">73192</a>	GE454MVPS90-G	4	99.0	1.12
<a href="#">73193</a>	GE454MVPS90-G-42	4	99.0	1.12

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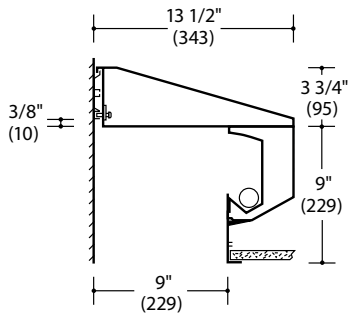
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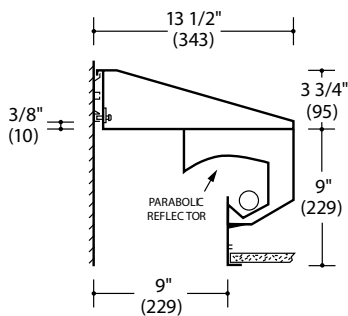
Type:  
Project:

## Wall/Slot®-2000 Wall/Slot®-2000PR 2000 or 2000PR Recessed Perimeter

### Specifications



Wall/Slot-2000



Wall/Slot-2000PR

**FIXTURE SUPPORT RAIL.** Extruded white aluminum, wall-mounted rail provides continuous support and true alignment of fixtures and components. Rail is designed to provide a reveal at the wall to compensate for irregularities in wall construction. Galvanized splines are included for continuous alignment.

**FIXTURE HOUSING.** Die-formed and welded steel. Plenum cover/wall bracket is a one-piece assembly of 20-gauge steel and heavy-gauge steel brackets with leveling screws to provide adjustment. Brackets are spaced approximately every two feet for 2-, 4-, and 8-foot fixtures, and 1 1/2 feet for 3-foot and 6-foot fixtures. Plenum cover has a continuous hook-and-lock feature for quick installation.


**REFLECTOR. 2000** curved reflector is die-formed specular hammertone aluminum, precisely shaped for maximum downward light projection. Straight reflector portions are steel, finished in high-reflectance white for uniform light distribution. **2000PR** uses a larger parabolic reflector (**PR**), die-formed, hammertone, low-iridescence semi-specular aluminum, precisely shaped for maximum downward light projection. It is shielded from all viewing angles from 0° to 60° below horizontal. Straight reflector portions are steel, finished in high-reflectance white for uniform light distribution.

**CEILING TRIM/LUMINANCE CONTROL DEFLECTOR.** Extruded aluminum with internal aligner splines. **LCD** shields lamps from direct view and eliminates socket shadows on wall. Paint finish is Matte White (**CWM**) baked enamel.

**LAMPING.** Available in one-lamp T5, T5HO, or T8, or one-lamp twin-tube compact fluorescent.

**BALLAST.** Electronic Ballast (**ELB** - for T8 or BX lamping) or Low-profile Electronic Ballast (**LP/ELB** - for T5 or T5HO lamping), high power factor, thermally protected Class P, Sound Rated A, manufactured by a UL Listed manufacturer, as available, determined by Litecontrol. Ballasts with a voltage range of 120 to 277 will be used when fixture configuration and ballast availability allow. The minimum number of ballasts will be used.

**CEILING TYPE.** Compatible with most types of ceiling systems, including grid and plaster. Fixture system must be installed prior to installation of ceiling. Finish of wall should extend 13" above finished ceiling height. See Wall/Slot-2000 Pre-Installation Manual for specific ceiling type details.

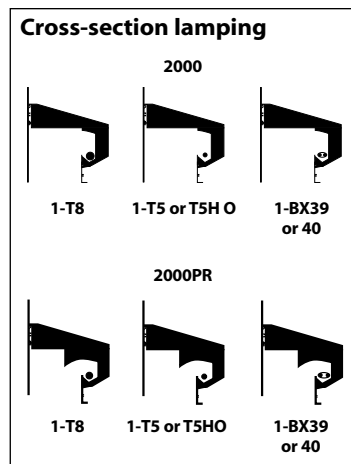
**CERTIFICATION.** Fixture and electrical components shall be UL and/or CUL Listed and shall bear the I.B.E.W., A.F. of L. label. 

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

### Ordering guide

Product, lamping, & length			
20	1	4	T8 -
Series	Lamp Count	Nominal Length(ft)	Lamp Type
20	1 →	2,3,4 →	T8
	2 →	6,8 →	
	1 →	3,4 →	T5HO
	2 →	6,8 →	T5
	1 →	2 →	BX40
	2 →	4 →	
	4 →	8 →	BX39
	2 →	3 →	
	4 →	6 →	
		see notes	

Options			
CWM -	ELB -	PR -	120
Finish	Ballast	Other options	Volts
CWM (Matte White) is standard	ELB is std. for T8 or BX LP/ELB is std. for T5 or T5HO	EF F PR SDS  see Other options	120 277
	DA/ELB HEL/ELB ECO/ELB  see Ballast options		



**2014T8-CWM-ELB-1CWQ-PR-120** is a typical catalog number for a 1-lamp (1 lamp in cross-section), 4-foot long T8 fixture, Matte White finish, electronic ballast, pre-wired with single-circuit branch-wiring, parabolic reflector, 120 volts.

#### Questions to Ask

1. 120 or 277 volt?
2. Row information, including desired fixture lengths?
3. Verify ceiling type?
4. Other options?



## Ballast options

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

- DA/ELB** Advance Mark VII Dimming Ballast.  
**HEL/ELB** Osram Sylvania Helios Dimming Ballast.  
**ECO/ELB** Lutron ECO-10 Dimming Ballast.

## Other options

- EF** Emergency Fluorescent Ballast. Battery-powered ballast from a UL Listed manufacturer will operate one T8 lamp for 1 1/2 hours.  
**F** Fuse. Slow or fast blow, determined by Litecontrol.  
**PR** Parabolic Reflector. Larger specular hammertone aluminum reflector for additional downward light projection.  
**SDS** Special Depth Shield. A shallow-depth fixture of 10 1/2" height is available for areas where obstructions occur. Contact factory.

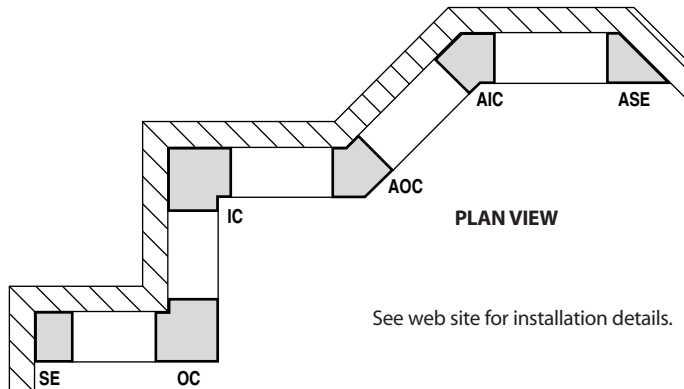
## System connectors

### Catalog Number

Series	Connector	Finish	Description (Minimum-Maximum along wall in parenthesis)
2000	EC	CWM	End Cap
2000	SE	CWM	Straight Extension (2"-12")
2000	IC	CWM	Inside Corner - 90° (14"-21")
2000	OC	CWM	Outside Corner - 90° (2"-11")
2000	ASE	CWM	Angular Straight Extension - 135° (2"-11")
2000	AIC	CWM	Angular Inside Corner - 135° (6"-15")
2000	AOC	CWM	Angular Outside Corner - 135° (2"-11")

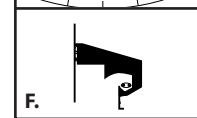
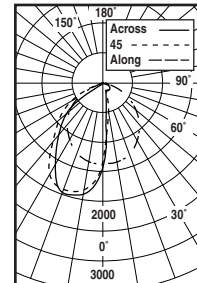
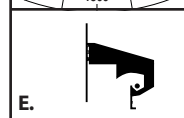
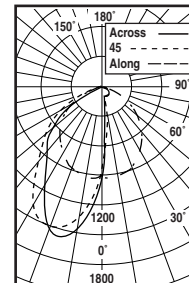
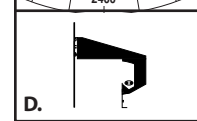
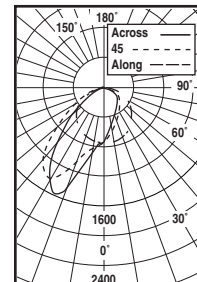
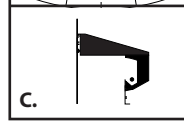
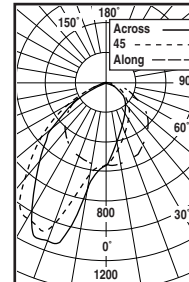
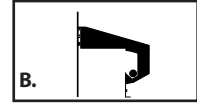
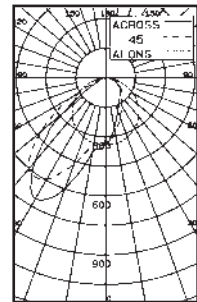
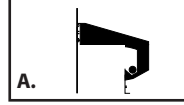
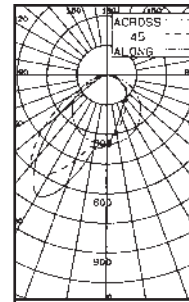
**2000-AOC-CWM** is a typical catalog number for an angular outside corner connector. Corners, extensions, and end caps, when added to fixtures, permit continuous wall-to-wall installation. Lengths are field cut.  
 Finish: CWM (Matte White)

**NOTE:** Parabolic reflector is positioned above lamps only, and does not extend through system connectors.



See web site for installation details.

## Photometric data



**A.** 2014T8 70% wall reflectance  
 Litecontrol Certified Test Report #14711001

**B.** 2014T8 50% wall reflectance  
 Litecontrol Certified Test Report #14711000

**C.** 2014T5HO 50% wall reflectance  
 Litecontrol Certified Test Report #14716000

**D.** 2024BX40 50% wall reflectance  
 Litecontrol Certified Test Report #14720000

**E.** 2014T5HO-PR 50% wall reflectance  
 Litecontrol Certified Test Report #24316000

**F.** 2024BX40-PR 50% wall reflectance  
 Litecontrol Certified Test Report #24320000

For complete photometric information,  
 see website.

Click on  
**Quick Find 20**



litecontrol.com

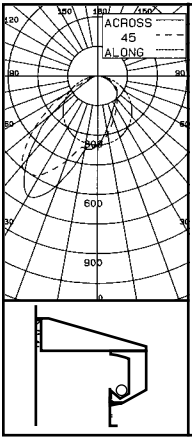
**LITECONTROL** ... an employee owned company

100 Hawks Avenue Hanson MA 02341 781 294 0100 FAX 781 293 2849

info@litecontrol.com

litecontrol.com

**PHOTOMETRIC DATA: Wall/Slot-2000**



**CANDLEPOWER SUMMARY**

ANGLE	0	45	90	135	180	OUTPUT LUMENS
90	0	0	1	1	1	
85	6	7	14	15	13	14
80	16	16	41	29	27	
75	25	29	71	46	41	49
70	36	43	103	64	57	
65	49	87	133	82	73	103
60	85	187	164	102	90	
55	166	305	193	118	108	176
50	301	413	220	129	127	
45	424	511	245	142	139	228
40	543	589	267	155	147	
35	642	604	287	170	156	225
30	701	580	303	189	169	
25	667	520	318	212	185	169
20	582	457	330	235	207	
15	482	390	339	265	236	97
10	383	370	345	297	272	
5	372	368	349	328	315	33
0	349	349	349	349	349	

**2014T8-120 70% wall reflectance**  
Litecontrol Certified Test Report #14711001

RCC RW	80				70				50				30				10				0
	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	50	30	10	
RCR																					
0	.45	.45	.45	.45	.44	.44	.44	.44	.42	.42	.42	.40	.40	.40	.38	.38	.38	.38	.38	.38	.38
1	.42	.40	.39	.37	.41	.39	.38	.37	.38	.37	.36	.36	.35	.35	.35	.34	.34	.33	.33	.33	.33
2	.38	.36	.33	.31	.37	.35	.33	.31	.33	.32	.30	.32	.31	.30	.31	.30	.29	.28	.28	.28	.28
3	.35	.32	.29	.27	.34	.31	.29	.27	.30	.28	.26	.29	.27	.26	.28	.27	.25	.24	.24	.24	.24
4	.32	.28	.25	.23	.32	.28	.25	.23	.27	.24	.22	.26	.24	.22	.25	.23	.22	.21	.21	.21	.21
5	.30	.25	.22	.19	.29	.25	.22	.19	.24	.21	.19	.23	.21	.19	.22	.20	.19	.18	.18	.18	.18
6	.27	.22	.19	.17	.27	.22	.19	.17	.21	.19	.17	.21	.18	.17	.20	.18	.16	.16	.16	.16	.16
7	.25	.20	.17	.15	.24	.20	.17	.15	.19	.16	.15	.19	.16	.14	.18	.16	.14	.14	.14	.14	.14
8	.23	.18	.15	.13	.22	.18	.15	.13	.17	.14	.12	.17	.14	.12	.16	.14	.12	.12	.12	.12	.12
9	.21	.16	.13	.11	.21	.16	.13	.11	.15	.13	.11	.15	.12	.11	.15	.12	.10	.10	.10	.10	.10
10	.19	.15	.11	.09	.19	.14	.11	.09	.14	.11	.09	.14	.11	.09	.13	.11	.09	.09	.09	.09	.09

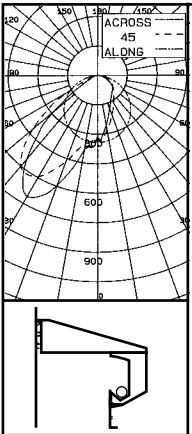
Floor Cavity Reflectance .20

**ZONAL LUMEN SUMMARY**

ZONE	LUMENS	% LAMP	% LUMINAIRE
180-90°	0	0.0	0.0
90-0°	1090	37.61	100
180-0°	1090	37.61	100

**LUMINANCE SUMMARY (fL)**

ANGLE	0°	45°	90°	135°	180°
45°	630	759	362	210	206
55°	304	559	353	216	198
65°	123	216	330	205	183
75°	103	118	289	186	167
85°	69	80	174	181	151



**CANDLEPOWER SUMMARY**

ANGLE	0	45	90	135	180	OUTPUT LUMENS
90	0	1	1	2	1	
85	4	5	13	12	10	12
80	13	14	38	24	21	
75	21	24	68	39	33	44
70	30	36	98	56	47	
65	41	79	129	70	61	95
60	73	182	159	84	75	
55	150	304	187	93	88	166
50	286	423	214	102	101	
45	418	528	237	113	108	221
40	551	602	260	126	114	
35	656	615	279	143	124	220
30	709	593	296	163	137	
25	676	532	310	187	156	165
20	595	466	321	215	181	
15	490	393	330	248	214	95
10	385	365	336	283	256	
5	367	361	340	319	305	32
0	308	308	308	308	308	

**2014T8-120 50% wall reflectance**  
Litecontrol Certified Test Report #14711000

RCC RW	80				70				50				30				10				0
	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	50	30	10	
RCR																					
0	.43	.43	.43	.43	.42	.42	.42	.42	.40	.40	.40	.38	.38	.38	.37	.37	.37	.36	.36	.36	.36
1	.40	.38	.37	.36	.39	.38	.36	.35	.36	.35	.34	.35	.34	.33	.33	.33	.32	.32	.32	.32	.32
2	.37	.34	.32	.30	.36	.34	.32	.30	.32	.31	.29	.31	.30	.29	.30	.29	.28	.27	.27	.27	.27
3	.34	.30	.28	.26	.33	.30	.28	.26	.29	.27	.25	.28	.26	.25	.27	.26	.24	.24	.24	.24	.24
4	.31	.27	.24	.22	.30	.27	.24	.22	.26	.24	.22	.25	.23	.21	.24	.23	.21	.20	.20	.20	.20
5	.29	.24	.21	.19	.28	.24	.21	.19	.23	.21	.19	.22	.20	.18	.22	.20	.18	.18	.18	.18	.18
6	.26	.22	.19	.16	.26	.21	.18	.16	.21	.18	.16	.20	.18	.16	.20	.17	.16	.15	.15	.15	.15
7	.24	.19	.16	.14	.24	.19	.16	.14	.19	.16	.14	.18	.16	.14	.18	.15	.14	.13	.13	.13	.13
8	.22	.17	.14	.12	.22	.17	.14	.12	.17	.14	.12	.16	.14	.12	.16	.14	.12	.12	.12	.12	.12
9	.20	.16	.13	.10	.20	.15	.12	.10	.15	.12	.10	.14	.12	.10	.14	.12	.10	.10	.10	.10	.10
10	.19	.14	.11	.09	.18	.14	.11	.09	.13	.11	.09	.13	.11	.09	.13	.11	.09	.09	.09	.09	.09

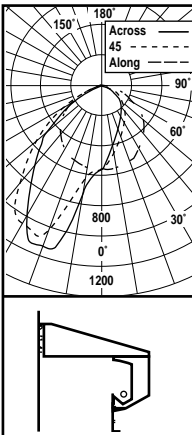
Floor Cavity Reflectance .20

**ZONAL LUMEN SUMMARY**

ZONE	LUMENS	% LAMP	% LUMINAIRE
180-90°	0	0.0	0.0
90-0°	1045	36.05	100
180-0°	1045	36.05	100

**LUMINANCE SUMMARY (fL)**

ANGLE	0°	45°	90°	135°	180°
45°	622	785	351	167	160
55°	275	558	342	171	162
65°	102	196	319	174	151
75°	83	97	274	160	135
85°	51	61	160	144	126



**CANDLEPOWER SUMMARY**

ANGLE	0	45	90	135	180	OUTPUT LUMENS
90	0	2	1	0	0	
85	7	12	20	11	7	16
80	25	28	64	25	22	
75	39	44	109	48	38	70
70	57	94	162	76	59	
65	81	174	210	99	82	158
60	176	349	259	131	105	
55	283	447	307	159	130	270
50	479	573	352	181	154	
45	568	706	392	205	182	340
40	698	863	428	228	201	
35	841	1015	459	252	220	352
30	1019	1038	486	283	242	
25	1139	1075	507	314	265	288
20	1128	968	522	352	300	
15	1033	722	539	394	345	166
10	679	620	545	439	397	
5	578	578	551	491	462	52
0	546	546	546	546	546	

**2014T5HO 50% wall reflectance**  
Litecontrol Certified Test Report #14716000

RCC RW	80				70				50				30				10				0
	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	50	30	10	
RCR																					
0	.41	.41	.41	.41	.40	.40	.40	.40	.38	.38	.38	.36	.36	.36	.35	.35	.35	.34	.34	.34	.34
1	.38	.36	.35	.34	.37	.36	.35	.34	.34	.33	.32	.33	.32	.31	.32	.31	.31	.30	.30	.30	.30
2	.35	.32	.30	.29	.34	.32	.30	.28	.31	.29	.28	.30	.28	.27	.29	.28	.27	.26	.26	.26	.26
3	.32	.29	.27	.25	.31	.28	.26	.24	.27	.26	.24	.27	.25	.24	.26	.24	.23	.22	.22	.22	.22
4	.30	.26	.23	.21	.29	.25	.23	.21	.25	.22	.21	.24	.22	.20	.23	.22	.20	.20	.20	.20	.20
5	.27	.23	.20	.18	.26	.23	.20	.18	.22	.20	.18	.21	.19	.18	.21	.19	.17	.17	.17	.17	.17
6	.25	.21	.18	.16	.24	.20	.18	.16	.20	.17	.16	.19	.17	.15	.19	.17	.15	.15	.15	.15	.15
7	.23	.19	.16	.14	.22	.18	.16	.14	.18	.15	.14	.17	.15	.13	.17	.15	.13	.13	.13	.13	.13
8	.21	.17	.14	.12	.21	.16	.14	.12	.16	.13	.12	.16	.13	.12	.15	.13	.12	.12	.12	.12	.12
9	.19	.15	.12	.10	.19	.15	.12	.10	.14	.12	.10	.14	.12	.10	.14	.11	.10	.10	.10	.10	.10
10	.18	.13	.11	.09	.18	.13	.11	.09	.13	.11	.09	.13	.10	.09	.12	.10	.09	.09	.09	.09	.09

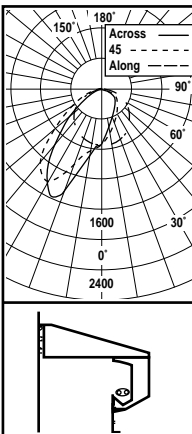
Floor Cavity Reflectance .20

**ZONAL LUMEN SUMMARY**

ZONE	LUMENS	% LAMP	% LUMINAIRE
180-90°	0	0.0	0.0
90-0°	1706	34.14	100.00
180-0°	1706	34.14	100.00

**LUMINANCE SUMMARY (fL)**

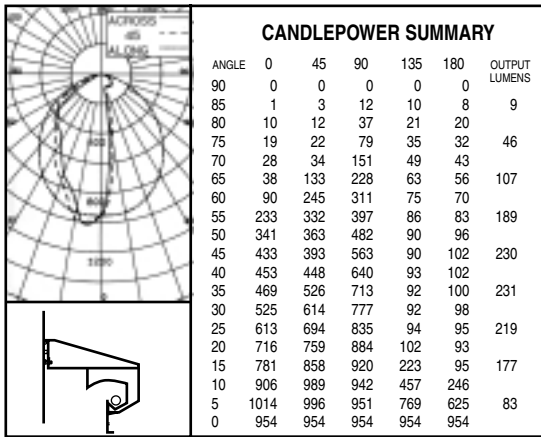
ANGLE	0°	45°	90°	135°	180°
45°	845	1050	580	304	270
55°	519	819	560	291	238
65°	200	434	520	246	205
75°	159	178	440	196	154
85°	82	139	245	131	82



**CANDLEPOWER SUMMARY**

ANGLE	0	45	90	135	180	OUTPUT LUMENS
90	3	1	2	3	3	

**PHOTOMETRIC DATA: Wall/Slot-2000PR**



**2014T8-PR 70% wall reflectance**  
Litecontrol Certified Test Report #24311001

RCC RW	80				70				50				30				10				0	
	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	50	30	10	0	
RCR																						
0	.53	.53	.53	.53	.52	.52	.52	.52	.49	.49	.49	.47	.47	.47	.45	.45	.45	.44				
1	.49	.48	.46	.45	.48	.47	.45	.44	.45	.44	.43	.43	.42	.41	.42	.41	.40	.39				
2	.46	.43	.40	.38	.45	.42	.40	.38	.40	.39	.37	.39	.38	.36	.38	.37	.35	.35				
3	.42	.39	.36	.33	.41	.38	.35	.33	.37	.34	.32	.36	.34	.32	.34	.33	.31	.30				
4	.39	.35	.32	.29	.38	.34	.31	.29	.33	.31	.28	.32	.30	.28	.31	.29	.28	.27				
5	.36	.31	.28	.25	.35	.31	.27	.25	.30	.27	.25	.29	.27	.25	.28	.26	.24	.23				
6	.34	.28	.25	.22	.33	.28	.25	.22	.27	.24	.22	.27	.24	.22	.26	.23	.22	.21				
7	.31	.26	.22	.20	.31	.25	.22	.20	.25	.22	.20	.24	.21	.19	.24	.21	.19	.19				
8	.29	.23	.20	.18	.28	.23	.20	.17	.23	.20	.17	.22	.19	.17	.22	.19	.17	.16				
9	.27	.21	.18	.16	.26	.21	.18	.16	.21	.18	.15	.20	.17	.15	.20	.17	.15	.14				
10	.25	.20	.16	.14	.25	.19	.16	.14	.19	.16	.14	.18	.16	.14	.18	.16	.14	.13				

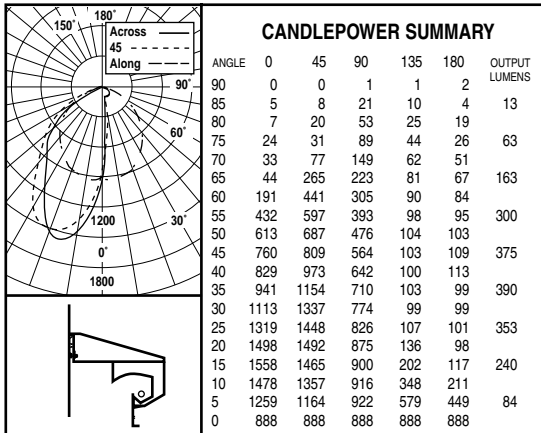
Floor Cavity Reflectance .20

**ZONAL LUMEN SUMMARY**

ZONE	LUMENS	% LAMP	% LUMINAIRE
180-90°	0	.00	.00
90-0°	1286	44.35	100
180-0°	1286	44.35	100

**LUMINANCE SUMMARY (fL)**

ANGLE	0°	45°	90°	135°	180°
45°	644	584	834	134	151
55°	428	608	724	157	151
65°	94	331	564	158	138
75°	76	90	320	140	130
85°	16	38	149	117	101



**2014T5HO-PR 50% wall reflectance**  
Litecontrol Certified Test Report #24316000

RCC RW	80				70				50				30				10				0	
	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	50	30	10	0	
RCR																						
0	.47	.47	.47	.47	.46	.46	.46	.46	.44	.44	.44	.42	.42	.42	.40	.40	.40	.40				
1	.44	.42	.41	.40	.43	.42	.40	.39	.40	.39	.38	.38	.38	.37	.37	.36	.36	.35				
2	.41	.38	.36	.34	.40	.37	.35	.34	.36	.34	.33	.35	.33	.32	.34	.32	.31	.31				
3	.38	.34	.31	.29	.37	.34	.31	.29	.33	.30	.29	.31	.30	.28	.31	.29	.28	.27				
4	.35	.31	.28	.25	.34	.30	.28	.25	.29	.27	.25	.28	.26	.25	.28	.26	.24	.24				
5	.32	.28	.24	.22	.31	.27	.24	.22	.26	.24	.22	.26	.23	.21	.25	.23	.21	.20				
6	.30	.25	.22	.19	.29	.24	.21	.19	.24	.21	.19	.23	.21	.19	.23	.20	.19	.18				
7	.27	.22	.19	.17	.27	.22	.19	.17	.22	.19	.17	.21	.19	.17	.21	.18	.17	.16				
8	.25	.20	.17	.15	.25	.20	.17	.15	.19	.17	.15	.19	.16	.15	.19	.16	.15	.14				
9	.23	.18	.15	.13	.23	.18	.15	.13	.18	.15	.13	.17	.15	.13	.17	.14	.13	.12				
10	.22	.17	.14	.12	.21	.16	.14	.12	.16	.13	.11	.16	.13	.11	.15	.13	.11	.11				

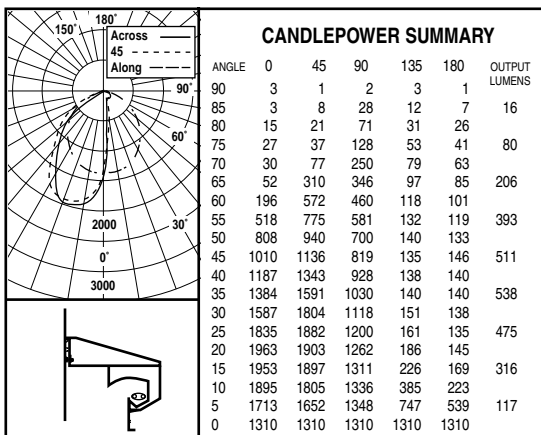
Floor Cavity Reflectance .20

**ZONAL LUMEN SUMMARY**

ZONE	LUMENS	% LAMP	% LUMINAIRE
180-90°	0	.00	.00
90-0°	1977	39.55	100.00
180-0°	1977	39.55	100.00

**LUMINANCE SUMMARY (fL)**

ANGLE	0°	45°	90°	135°	180°
45°	1130	1203	835	152	163
55°	792	1094	717	179	174
65°	109	658	553	200	166
75°	96	126	360	179	107
85°	63	97	249	119	43



**2024BX40-PR 50% wall reflectance**  
Litecontrol Certified Test Report #24320000

RCC RW	80				70				50				30				10				0	
	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	50	30	10	0	
RCR																						
0	.50	.50	.50	.50	.49	.49	.49	.49	.47	.47	.47	.45	.45	.45	.43	.43	.43	.42				
1	.47	.45	.44	.43	.46	.44	.43	.42	.42	.41	.41	.41	.40	.39	.39	.39	.38	.37				
2	.43	.41	.39	.37	.43	.40	.38	.36	.39	.37	.35	.37	.36	.35	.36	.35	.34	.33				
3	.40	.37	.34	.32	.39	.36	.34	.31	.35	.33	.31	.34	.32	.30	.33	.31	.30	.29				
4	.37	.33	.30	.28	.37	.33	.30	.28	.32	.29	.27	.31	.29	.27	.30	.28	.27	.26				
5	.35	.30	.27	.24	.34	.30	.27	.24	.29	.26	.24	.28	.26	.24	.27	.25	.24	.23				
6	.32	.27	.24	.22	.31	.27	.24	.22	.26	.23	.21	.25	.23	.21	.25	.23	.21	.20				
7	.30	.25	.21	.19	.29	.24	.21	.19	.24	.21	.19	.23	.20	.19	.23	.20	.18	.18				
8	.28	.22	.19	.17	.27	.22	.19	.17	.22	.19	.17	.21	.19	.17	.21	.18	.17	.16				
9	.26	.20	.17	.15	.25	.20	.17	.15	.20	.17	.15	.19	.17	.15	.19	.16	.15	.14				
10	.24	.19	.16	.13	.23	.18	.16	.13	.18	.15	.13	.18	.15	.13	.17	.15	.13	.13				

Floor Cavity Reflectance .20

**ZONAL LUMEN SUMMARY**

ZONE	LUMENS	% LAMP	% LUMINAIRE
180-90°	0	.00	.00
90-0	2647	42.02	100.00
180-0	2647	42.02	100.00

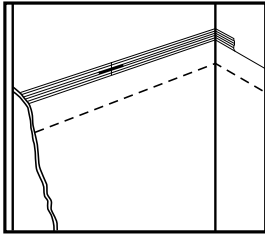
**LUMINANCE SUMMARY (fL)**

ANGLE	0°	45°	90°	135°	180°
45°	1502	1689	1212	201	218
55	948	1420	1062	242	218
65	130	770	857	242	211
75	108	150	520	216	166
85	34	98	333	142	81

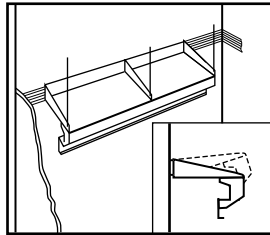
## PLANNING FOR INSTALLATION

Finished wall should extend 13" above ceiling. Locate bottom of Fixture Support Rail 9 3/8" up from bottom of ceiling for Lay-in Grid T-bar ceilings. Extruded trim of fixtures supports ceiling tiles at perimeter; elsewhere ceiling construction must be supported independently of the lighting system.

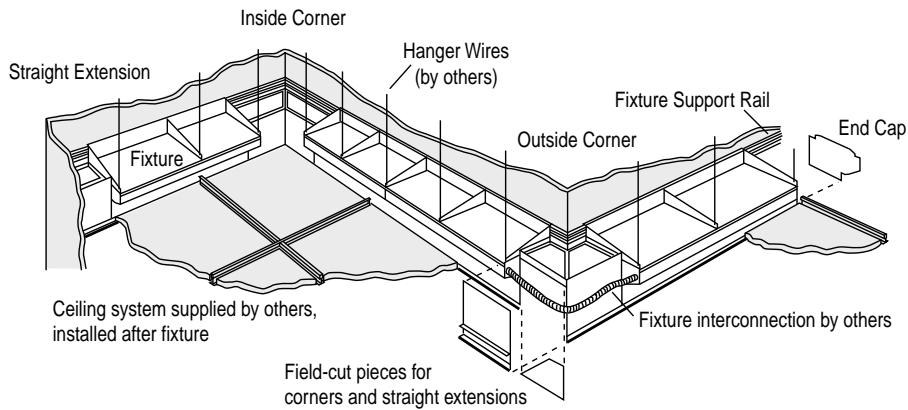
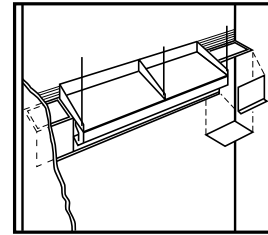
1. Install Fixture Support Rails on wall.



2. Hook fixtures on rail and slide into position. Attach hanger wires.



3. Install extensions and corners.



### QUESTIONS TO ASK

1. 120 or 277 volt?
2. Row information, including desired fixture lengths?
3. Verify ceiling type?
4. Other options?

## 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.

### 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



### 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)

<b>Job Name:</b> <input style="width: 90%; height: 20px;" type="text"/>	<b>Model Numbers:</b> <input style="width: 95%; height: 20px;" type="text"/>	
<b>Job Number:</b> <input style="width: 100px; height: 20px;" type="text"/>	<input style="width: 95%; height: 20px;" type="text"/>	<input style="width: 95%; height: 20px;" type="text"/>

## 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

<b>Job Name:</b> <input style="width: 90%; height: 20px;" type="text"/>	<b>Model Numbers:</b> <input style="width: 60%; height: 20px;" type="text"/> <input style="width: 35%; height: 20px;" type="text"/>	
<b>Job Number:</b> <input style="width: 100%; height: 20px;" type="text"/>	<input style="width: 100%; height: 20px;" type="text"/>	<input style="width: 100%; height: 20px;" type="text"/>

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
<b>T8 linear and U-bent</b>  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	

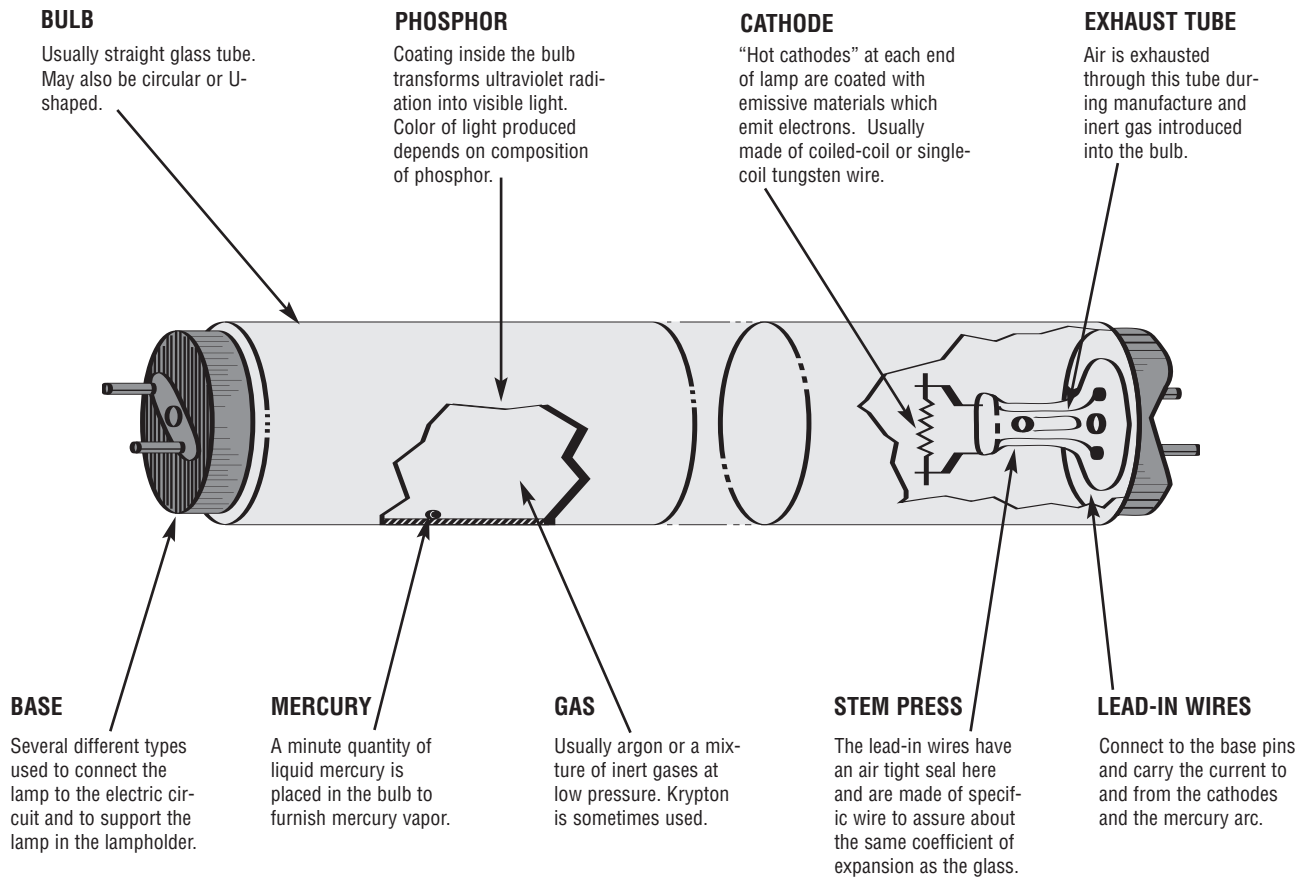


Job Name: <input type="text"/> Job Number: <input type="text"/>	Model Numbers: <input type="text"/> <input type="text"/>
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## OSRAM SYLVANIA: THE LEADER IN ENERGY SAVING FLUORESCENT LAMPS

The fluorescent lamp is an electric discharge device which utilizes a low pressure mercury vapor arc to generate ultra-violet (plus a little visible) energy. The ultra-violet energy is absorbed by a phosphor coat on the inside of the glass tube and converted by the phosphor to visible wavelengths; the wavelengths of the light generated are determined by the composition of the phosphor. In addition to the small amount of mercury vapor, the fluorescent tube contains an atmosphere of an inert gas, usually argon, krypton, neon, or a mixture of two or more of these gases. The pressure of the gases contained in the lamp is very low, usually from 2 to 3 torr. Atmospheric pressure is 760 torr.



## HOW TO READ PRODUCT INFORMATION - FLUORESCENT

Nominal Wattage	Bulb	Nominal Length(in)	MOL (in)	Base	Product Number	Ordering Abbreviation	Pkg Qty	Avg Rated Life (hrs)	CCT (K)	CRI	Approx Lumens Initial	Approx Lumens Mean @25°C/77°F (@35°C/95°F)	Symbols & Footnotes
32	T8	48	47.78	Med Bipin	21763	<b>F032/835XP/ECO</b>	30	24000	3500	85	3000	2850	☉  2,21,31,35,39,60,70
34	T12	48	47.78	Med Bipin	24594	<b>F34CW/SS</b> Formerly F40CW/SS	30	20000	4200	60	2650	2279	☉ 2,10,13,19,21,42
54	T5	48	45.5	Mini Bipin	20857	<b>FP54/830/HO</b>	40	20000	3000	85	4450 5000	4228 4750	 2,21,26,35,59
60	T12	96	94	Single Pin	29815	<b>F96T12/CW/SS</b>	15	12000	4200	60	5300	4664	☉ 2,15,21

<b>Nominal Wattage</b>	Design wattage on reference ballast. Actual wattage dependent on ballast.
<b>Bulb</b>	Describes the shape of the bulb followed by the bulb's diameter at its widest point. The diameter value is expressed in eighths of an inch. Ex. T = Tubular, 8 = 8/8 inch = 1 inch. Please see page 134 for bulb illustrations.
<b>Base</b>	Please see page 134 for base illustrations.
<b>Nominal Length</b>	The nominal length of linear fluorescent lamps is typically measured from back of lampholder to back of lampholder. PENTRON® linear lamp, CURVALUME® and Circline lamps are exceptions. The nominal length given for PENTRON linear lamps is the closest familiar nominal length. CURVALUME lamps are measured from the face of the bases to the outside of the glass bend. The measurement for Circline lamps is the outside diameter. Values are in inches.
<b>MOL</b>	Maximum overall length. The length of the lamp measured in inches.
<b>Symbols &amp; Footnotes</b>	Most symbols and footnotes that apply to a specific product will appear in this space. The explanations of the symbols and footnotes are at the end of the fluorescent section.
<b>Ordering Abbreviation</b>	A text description of the lamp. Please see below for several examples and explanations of some of the codes.
<b>CCT</b>	Correlated Color Temperature. The degree of "whiteness" of the light. Expressed in kelvins (K). Please see page 131 for more information.
<b>CRI</b>	Color Rendering Index. A numbering system for rating the relative color rendering quality of a light source compared to a standard. Please see page 131 for more information.
<b>Initial &amp; Mean Lumens</b>	Initial lumens are measured when the lamp has been operating for 100 hours. Mean lumens are typically measured at 40% of the rated life of the lamp. For longer life lamp such as the OCTRON® XP® lamps, the mean lumens are measured at the same point in time as they are measured for the standard lamps they replace. Fluorescent lamp lumens are typically measured at 25°C (77°F). The lamp lumens are measured at both 25°C (77°F) and 35°C (95°F) for PENTRON® linear lamps.

### How to Read Ordering Abbreviations

<b>F032/835XP/ECO</b>		<b>F34CW/SS</b>		<b>FP54/830/HO</b>		<b>F96T12/CW/SS</b>	
F	Fluorescent	F	Fluorescent	F	Fluorescent	F	Fluorescent
0	OCTRON®	34	Nominal lamp	P	PENTRON	96	96" nominal length
32	Nominal lamp wattage		wattage	54	Nominal lamp wattage	T	Tubular Shape Bulb
8	85 CRI	CW	Cool White phosphor	8	85 CRI	12	Bulb diameter; 1 1/8 inch = 1 1/2 inches
35	3500K CCT	SS	SUPERSAVER® - reduced wattage lamp	30	3000K CCT	CW	Cool White phosphor
XP®	EXtended Performance			HO	High Output	SS	SUPERSAVER - reduced wattage lamp
ECO®	ECOLOGIC® - TCLP passing lamp						

### Lamp Disposal Labeling

The following information appears on the packages of fluorescent lamps. For more information on lamp disposal labeling, see the inside back cover of this catalog.



**Lamp Contains Mercury**

Manage in accordance with disposal laws  
See [www.lamprecycle.org](http://www.lamprecycle.org) or 1-866-666-6850

For weight and measurement information, please visit [www.sylvania.com](http://www.sylvania.com)

## FLUORESCENT LAMP COLORS

COLOR	COLOR ABBREVIATION	CORRELATED COLOR TEMPERATURE(1)	COLOR RENDERING INDEX(2)
OCTRON® "800" 2700K	827	2700	85
OCTRON XP® "800" 2700K	827	2700	85
WARM WHITE DELUXE	WWX	2900	82
WARM WHITE	WW	3000	52
WARM WHITE PLUS	WWP	3000	70
DESIGNER® 3000K	D30	3000	70
DESIGNER WARM WHITE	DWW	3000	70
DESIGNER "800" 3000K	D830	3000	80
DESIGNER WARM WHITE PLUS	DWWP	3000	80
OCTRON "700" 3000K	730	3000	75
OCTRON XP "700" 3000K	730	3000	78
OCTRON "800" 3000K	830	3000	82
OCTRON XP "800" 3000K	830	3000	85
OCTRON XPS® "800" 3000K	830	3000	85
PENTRON® 3000K	830	3000	85
GRO-LUX® Aquarium WIDE SPECTRUM	GRO/AQ/WS	3400	89
WHITE	W	3450	57
DESIGNER 3500K	D35	3500	70
DESIGNER "800" 3500K	D835	3500	80
ICETRON® 3500K	835	3500	80
PENTRON 3500K	835	3500	85
OCTRON "700" 3500K	735	3500	75
OCTRON XP "700" 3500K	735	3500	78
OCTRON "800" 3500K	835	3500	82
OCTRON XP "800" 3500K	835	3500	85
OCTRON XPS "800" 3500K	835	3500	86
NATURAL WHITE	N	3600	86
DESIGNER 4100K	D41	4100	70
DESIGNER COOL WHITE	DCW	4100	70
DESIGNER "800" 4100K	D841	4100	80
DESIGNER COOL WHITE PLUS	DCWP	4100	80
ICETRON 4100K	841	4100	80
OCTRON "700" 4100K	741	4100	75
OCTRON XP "700" 4100K	741	4100	78
OCTRON "800" 4100K	841	4100	82
OCTRON XP "800" 4100K	841	4100	85
OCTRON XPS "800" 4100K	841	4100	86
PENTRON 4100K	841	4100	85
COOL WHITE DELUXE	CWX	4100	87
LITE WHITE	LW	4150	48
COOL WHITE	CW	4200	60
COOL WHITE PLUS	CWP	4100	70
ICETRON 5000K	850	5000	80
OCTRON "700" 5000K	750	5000	75
OCTRON "800" 5000K	850	5000	80
OCTRON XP "800" 5000K	850	5000	85
OCTRON "900" 5000K	950	5000	90
PENTRON 5000K	580	5000	85
DESIGN 50®	DSGN50	5000	90
DAYLIGHT FULL SPECTRUM	DAYLIGHTFULL SPECTRUM	5000	90
DAYLIGHT®	DAYLIGHT	6500	76
DAYLIGHT 6500	DAYLIGHT6500V	6500	80
OCTRON "700" 6500K	765	6500	75
OCTRON XP "800" 6500K	865	6500	85
PENTRON 6500K	865	6500	85
DESIGNER 6500K	865	6500	80
DAYLIGHT DELUXE	DX	6500	88
OCTRON SKYWHITE	SKYWHITE	8000	88

## FLUORESCENT COMPETITIVE GUIDES

NOTE: These tables are intended only as guides and may represent another lamp company's most similar product or product family rather than an identical match. Individual manufacturer's performance values should be consulted. Environmental conditions, ballast type, and other auxiliary equipment may affect lamp performance.

### FLUORESCENT BRAND NAMES

SYLVANIA	GE*	PHILIPS**
CURVALUME® (FB)	MOD-U-LINE (U)	U-Bent (FB)
CWX		Home Light Everywhere (HL Everywhere)
DESIGN 50® (DSGN50)	Chroma 50 (C50)	Colortone 50 (C50)
DESIGNER® Series	Specification Series (SP)	SPEC or TL700
DESIGNER 800 Series	Specification Series (SPX)	Ultralume or TL800
DESIGNER Cool White	SP41	Home Light Cool (HL Cool)
DESIGNER Cool White PLUS	SPX41	41U
DESIGNER Warm White	Kitchen and Bath ULTRA (70 CRI)	SPEC30
DESIGNER Warm White PLUS (DWWP)	Kitchen and Bath ULTRA (80 CRI)	Home Light WX (HL WX)
DESIGNER 700, 3500K (D35)	SP35	Home Light Warm (HL Warm)
ECOLOGIC® (ECO®)	Ecolux (ECO)	ALTO
GRO-LUX®	Gro & Sho/Plant & Aquarium/Terrarium	Agro-Lite (AGRO)
ICETRON®	---	---
OCTRON®	T8 (was Trimline)	TL70/TL80
OCTRON 700 XP™ ECO	SP Ecolux XL T8 Lamps with Starcoat	TL700 PLUS ALTO
OCTRON 800 XP ECO	SPX Ecolux XL T8 Lamps with Starcoat	TL800 PLUS ALTO
OCTRON 800 XPS ECO	---	---
OCTRON 950	---	TL950
PENTRON®	T5 Starcoat	SILHOUETTE™
---	---	QL (similar to ICETRON, but not interchangeable)
SAFELINE®	covRguard	---
SUN STICK®	SUN (Sunshine)	C50
SUPERSAVER® (SS)	Watt-Miser (WM)	Econ-o-Watt (EW)
HO (800mA)	HO (800mA)	HO (800mA)
VHO (1500mA)	1500 (1500mA) & Power Grove	VHO (1500mA) (was SHO)
VHO/LT	T10/1500MA	VHO-0
XP®	XL	Plus
XPS®		Advantage

\* Trademarks or registered trademarks of General Electric Company \*\* Trademarks or registered trademarks of Philips

### FLUORESCENT COLOR CROSS REFERENCE

SYLVANIA	GE	PHILIPS	SYLVANIA	GE	PHILIPS
CW	CW	CW	D41	SP41	Spec 41
CWX		CWX, HL Everywhere		SP65	
D	D	D	D830	SPX30	30U
DX	DX	DX	D835	SPX35	35U
DSGN50	C50	50	D841	SPX41	41U
DSGN50	SGN	C50	D865		
DCW, D41	SP41	HL Cool	730	SP30	730
DCWP	SPX41	U41	735	SP35	735
DWW, D30	KB / 70 CRI, SP30	SPEC30	741	SP41	741
DWWP, D830	KB / 82 CRI, SPX30	HL WX	750	SP50	750
D35	SP35	HL Warm	765	SP65	
GRO/AQ		AGRO	827	SPX27	27
GRO/WS/AQ	PL/AQ		830	SPX30	30, 830
LW	LW	LW	835	SPX35	35, 835
N	N	N	841	SPX41	41, 841
SUN STICK	SUN	C50	850	SPX50	50, 850
WW	WW	WW	865	SPX65	865
D30	SP30	Spec 30	950		950
D35	SP35	Spec 35			

## FLUORESCENT COMPETITIVE GUIDES (continued)

### FLUORESCENT ELECTRICAL INTERCHANGEABILITY

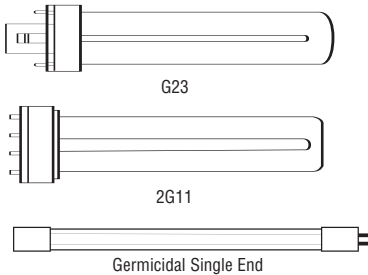
SYLVANIA	GE	PHILIPS
<b>Linear Lamps</b>		
F18T8/CW/K/23	F24*T8/CW/4	F15T8/CW/24
F18T8/CW/K/26	F26*T8/CW/4	F16T8/CW/26
F18T8/CW/K/28	F28*T8/CW/4	F17T8/CW/28
F18T8/CW/K/30	F30*T8/CW/4	F18T8/CW/30
F34CW/SS	F34CW/WM	F34CW/EW
Formerly known as F40CW/SS	F40CW/WM	F40CW/EW
F96T12/CW/SS	F96T12/CW/WM	F96T12/CW/EW
FB40/D41/6	F40/SP41/U/6	FB40/SPEC41/6
FB40/CW/6/SS (new FB34/CW/6/SS)	F40CW/U/6/WM (new F34CW/U/6/WM)	FB40/CW/6/EW (new F34/CW/6/EW)
OCTRON®	T8 (was Trimline)	TL70/TL80
OCTRON 700 Series	T8 SP	TL70
OCTRON 800 Series	T8 SPX	TL80
FO17...	F17T8/SP(or SPX)...	F17T8/TL...
FO25...	F25T8/SP(or SPX)...	F25T8/TL...
FO32...	F32T8/SP(or SPX)...	F32T8/TL...
FO32/...XP®	F32T8/XL/SP (or SPX)	F32T8/TL...PLUS
FO32/...XPS®/ECO®	---	F32T8/ADV
FO30...XP/SS/ECO	F32T8/SP.../IS/WM/ECO	F32T8/ADV8.../EW
FO28/8...XP/SS/ECO	---	---
FO32/25W/8...XP/SS/ECO	---	F32T8/ADV8.../XEW/ALTO
FO40...	F40T8/SP... (or SPX)	F40T8/TL
FO72...	---	---
FO96...	F96T8/SP... (or SPX)	F96T8/TL...
FO96/7...XP/ECO	F96T8/XL.SP...	---
FO96/8...XP/ECO	F96T8/XL/SPX...	---
FO96/8...XP/SS/ECO	F96T8/SP.../WM	---
---	---	F48T8/TL.../HO
---	---	F60T8/TL.../HO
---	---	F72T8/TL.../HO
FO96.../HO/ECO	F96T8/SP (or SPX).../HO	F96T8/TL.../HO
---	F25T12/SP... (for T8 electronic ballasts)	---
FBO16...	---	---
FBO24...	---	---
FBO31...	F31T8/SPX.../U	---
FBO31...XP	---	---
FBO32...	F32T8/SP(or SPX).../U6	FB32T8/TL.../6
FBO32...XP	---	---
FBO31/...XPS/ECO	---	---
FBO32/...XPS/ECO	---	---
FBO32/8...XP/SS/ECO	---	---
FP14/8..	F14/T5/8..	F14T5/8..
FP21/8..	F21/T5/8..	F21T5/8..
FP28/8..	F28/T5/8..	F28T5/8..
FP35/8..	F35/T5/8..	F35T5/8..
FP24/8../HO	F24/T5/8../HO	F24T5/8../HO
FP39/8../HO	F39/T5/8../HO	F39T5/8../HO
FP54/8../HO	F54/T5/8../HO	F54T5/8../HO
FP80/8../HO	F80/T5/8../HO	F80T5/8../HO
---	F40T17/CW/IS	---
---	F96T17/...	---
HO (800mA)	HO (800mA)	HO (800mA)
F96T12/.../HO/COLDTEMP	F96T12/.../HO/CT	F96T12/.../HO-0
VHO (1500mA)	1500 or PG17 (both 1500mA)	VHO (1500mA)
VHO/LT (1500mA)	T10, 1500-0 (both 1500mA)	VHO-0 (1500mA)
<b>Induction Lamps</b>		
ICE 70/8... (ICETRON®)	---	---
ICE 100/8... (ICETRON)	---	---
ICE 150/8... (ICETRON)	---	---
---	EL23/R25/... (Genura™)	---
---	---	QL55W/... (QL)
---	---	QL85W/... (QL)
---	---	QL165W/... (QL)

For a more complete manufacturers' cross reference, please see that section of this catalog or visit the electronic catalog at [www.sylvania.com](http://www.sylvania.com).

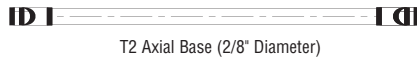
## FLUORESCENT LAMPS

The bulb shape and size of a fluorescent lamp are expressed by means of a code consisting of the letter "T" (which designates that the bulb is "tubular" in shape) followed by a number that expresses the diameter in eighths of an inch. Diameters range from T2 (1/4 inch) to T17 (2 1/8 inch). In nominal overall length, linear fluorescent lamps range from 6 to 96 inches. The nominal length is measured from back of lamp holder to back of lamp holder. For example, the actual overall length of the 40-watt rapid start T12 lamp with a nominal length of 48 inches is 47 3/4 inches. The nominal length given for PENTRON® linear lamps is the closest familiar nominal length. CURVALUME® U-shaped fluorescent lamps are available as OCTRON® T8 lamps with leg spacings of 1 1/2 inches and 6 inches and as rapid start T12 lamps with 6 spacings of 6 inches. The leg spacing is measured from the center of one leg to the center of the other leg. The overall length of the CURVALUME lamps is measured from the face of the bases to the outside of the glass bend. Circline lamps, which are circular in shape, are available as T9 lamps with outside diameters of 6 1/2, 8, 12 and 16 inches as well as PENTRON T5 lamps with outside diameters of 8.85 and 11.77 inches.

### Germicidal Compact Fluorescent



### T2 MINIATURE



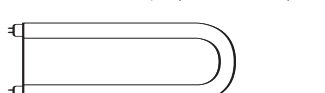
### PREHEAT, RAPID START



### T8 Medium Bipin (1" diameter)



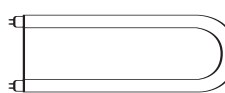
### T12 Medium Bipin (1-1/2" diameter)



### U-Shaped T12 (1-1/2" diameter) 6" leg spacing



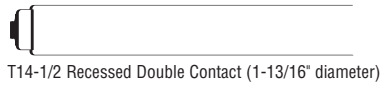
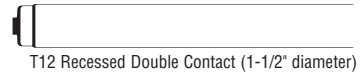
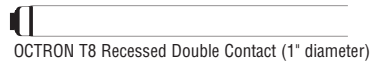
### OCTRON T8 U-Shaped with 1 5/8" leg spacing (1" diameter)



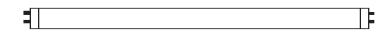
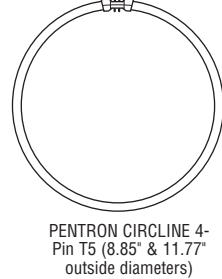
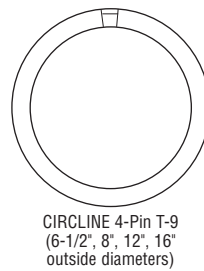
### OCTRON T8 U-Shaped with 6" leg spacing (1" diameter)



### HIGH OUTPUT AND VERY HIGH OUTPUT



### INSTANT START

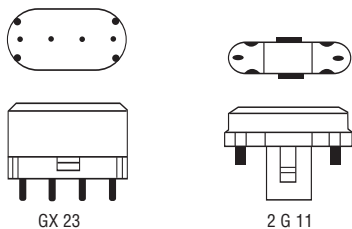


### Germicidal Single Pin

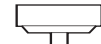
## BASES

For linear Preheat and Rapid Start Lamps, four electrical contacts are required, two at each end of the lamp. This is accomplished in the standard line of lamps by the use of a miniature bipin base for T5 lamps and a medium bipin for T8 and T12 lamps. The OCTRON® T8 medium bipin lamps may also be operated as instant start lamps with the proper wiring and ballasts. When operating OCTRON bipin lamps with instant start ballasts, the two contacts in the lamp holder are shorted together and connected to the single circuit in the ballast. In Circline lamps, the cathodes are connected to a four-pin base located between the junction of the two ends of the lamp. High Output (HO) and Very High Output (VHO) lamps have recessed double contact (RDC) type bases. Slimline Instant Start lamps require only two electrical contacts, one on each lamp end and have single pin bases.

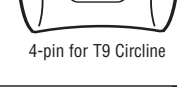
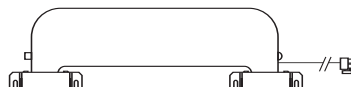
### Germicidal Compact Fluorescent



### SINGLE PIN



### BIPIN



## OCTRON® AND OCTRON® CURVALUME® FLUORESCENT LAMPS

OCTRON® lamps are T8 fluorescent lamps designed to be operated on dedicated magnetic rapid start or electronic instant start or programmed rapid start (also known as programmed start) ballasts. For details on various lamp/ballast system combinations, please refer to the Systems Performance Guide in the "SYLVANIA QUICKTRONIC® Ballast Technology and Specification Guide".

### OCTRON® 800 XPS® Lamps

Nominal Wattage	Bulb	Nominal Length (in)	MOL (in)	Base	Product Number	Ordering Abbreviation	Pkg Qty	Avg Rated Life @3hrs/start (@12hrs/start)	CCT (K)	CRI	Approx Lumens Initial @25°C/77°F	Approx Lumens Mean @25°C/77°F	Symbols & Footnotes
32	T8	48	47.78	Med Bipin	21680	F032/830/XPS/ECO	30	36000 (42000)	3000	85	3100	2945	19,31,33,48, 52,76,94
					21697	F032/835/XPS/ECO	30	36000 (42000)	3500	85	3100	2945	19,31,33,48, 52,76,94
					21681	F032/841/XPS/ECO	30	36000 (42000)	4100	85	3100	2945	19,31,33,48, 52,76,94
					21660	F032/850/XPS/ECO	30	36000 (42000)	5000	80	3000	2850	19,31,33, 48,52,76,94
					21659	F032/865/XPS/ECO	30	36000 (42000)	6500	80	2900	2750	19,31,33, 48,52,76,94

Nominal Wattage	Bulb	Nominal Length (in)	MOL (in)	Base	Product Number	Ordering Abbreviation	Pkg Qty	Avg Rated Life @3hrs/start	CCT (K)	CRI	Approx Lumens Initial @25°C/77°F	Approx Lumens Mean @25°C/77°F	Symbols & Footnotes
17	T8	24	23.78	Med Bipin	22150	F017/830/XPS/ECO	30	30000	3000	85	1400	1330	31,33,48,52, 76,93,94
					22151	F017/835/XPS/ECO	30	30000	3500	85	1400	1330	31,33,48,52, 76,93,94
					22152	F017/841/XPS/ECO	30	30000	4100	85	1400	1330	31,33,48,52, 76,93,94
25	T8	36	35.78	Med Bipin	22153	F025/830/XPS/ECO	30	30000	3000	85	2200	2090	31,33,48,52, 76,93,94
					22154	F025/835/XPS/ECO	30	30000	3500	85	2200	2090	31,33,48,52, 76,93,94
					22155	F025/841/XPS/ECO	30	30000	4100	85	2200	2090	31,33,48,52, 76,93,94

### OCTRON® 800 XP® 4 Foot SUPERSAVER® Lamps

Nominal Wattage	Bulb	Nominal Length (in)	MOL (in)	Base	Product Number	Ordering Abbreviation	Pkg Qty	Avg Rated Life @3hrs/start (@12hrs/start)	CCT (K)	CRI	Approx Lumens Initial @25°C/77°F	Approx Lumens Mean @25°C/77°F	Symbols & Footnotes
25		48	47.78	Med Bipin	22232	F032/25W/830/XP/SS/ECO	30	36000 (42000)	3000	85	2475	2350	9,16,17,18, 20,31,33,76,94
					22233	F032/25W/835/XP/SS/ECO	30	36000 (42000)	3500	85	2475	2350	9,16,17,18, 20,31,33,76,94
					22234	F032/25W/841/XP/SS/ECO	30	36000 (42000)	4100	85	2475	2350	9,16,17,18, 20,31,33,76,94
					22235	F032/25W/850/XP/SS/ECO	30	36000 (42000)	5000	85	2300	2185	9,16,17,18, 20,31,33,76,94
28	T8	48	47.78	Med Bipin	22177	F028/830/XP/SS/ECO	30	36000 (42000)	3000	85	2725	2590	9,16,20,23, 31,33,44,76,94,95
					22178	F028/835/XP/SS/ECO	30	36000 (42000)	3500	85	2725	2590	9,16,20,23, 31,33,44,76,94,95
					22179	F028/841/XP/SS/ECO	30	36000 (42000)	4100	85	2725	2590	9,16,20,23, 31,33,44,76,94,95
					22184	F028/850XP/SS/ECO	30	36000 (42000)	5000	80	2600	2470	9,16,20, 23,31,33,76,94,95



## OCTRON® AND OCTRON® CURVALUME® FLUORESCENT LAMPS

### OCTRON® 800 XP® 4 Foot SUPERSAVER® Lamps

Nominal Wattage	Bulb	Nominal Length (in)	MOL (in)	Base	Product Number	Ordering Abbreviation	Pkg Qty	Avg Rated Life @3hrs/start (@12hrs/start)	CCT (K)	CRI	Approx Lumens Initial @25°C/77°F	Approx Lumens Mean @25°C/77°F	Symbols & Footnotes
30	T8	48	47.78	Med Bipin	22063	F030/830/XP/SS/ECO	30	36000 (42000)	3000	85	2850	2710	31,33,48,95
					22060	F030/835/XP/SS/ECO	30	36000 (42000)	3500	85	2850	2710	31,33,48,95
					22062	F030/841/XP/SS/ECO	30	36000 (42000)	4100	85	2850	2710	31,33,48,95
					22202	F030/850/XP/SS/ECO	30	36000 (42000)	5000	85	2800	2660	31,33,48,95

### OCTRON® 800 XP® Lamps

Nominal Wattage	Bulb	Nominal Length (in)	MOL (in)	Base	Product Number	Ordering Abbreviation	Pkg Qty	Avg Rated Life @3hrs/start (@12hrs/start)	CCT (K)	CRI	Approx Lumens Initial @25°C/77°F	Approx Lumens Mean @25°C/77°F	Symbols & Footnotes
32	T8	48	47.78	Med Bipin	22039	F032/827/XP/ECO	30	36000 (42000)	2700	85	3000	2850	20,31,33,48,52,76,94
					21759	F032/830/XP/ECO	30	36000 (42000)	3000	85	3000	2850	20,31,33,48,52,76,94
					21763	F032/835/XP/ECO	30	36000 (42000)	3500	85	3000	2850	20,31,33,48,52,76,94
					21767	F032/841/XP/ECO	30	36000 (42000)	4100	85	3000	2850	20,31,33,48,52,76,94
					22026	F032/850/XP/ECO	30	36000 (42000)	5000	85	3000	2850	20,31,33,48,52,76,94
					21720	F032/865/XP/ECO	30	36000 (42000)	6500	85	2850	2708	20,31,33,48,52,76,94
					22594	F032/SKYWHITE/XP/ECO	30	36000 (42000)	8000	88	2650	2518	20,31,33,48,52,76,94

Nominal Wattage	Bulb	Nominal Length (in)	MOL (in)	Base	Product Number	Ordering Abbreviation	Pkg Qty	Avg Rated Life @3hrs/start	CCT (K)	CRI	Approx Lumens Initial @25°C/77°F	Approx Lumens Mean @25°C/77°F	Symbols & Footnotes
17	T8	24	23.78	Med Bipin	21587	F017/827/XP/ECO	30	24000	2700	85	1375	1305	31,33,44,48,52,76,87
					21785	F017/830/XP/ECO	30	24000	3000	85	1375	1305	31,33,44,48,52,76,87
					21778	F017/835/XP/ECO	30	24000	3500	85	1375	1305	31,33,44,48,52,76,87
					21907	F017/841/XP/ECO	30	24000	4100	85	1375	1305	31,33,44,48,52,76,87
					22193	F017/850/XP/ECO	30	24000	5000	85	1375	1305	31,33,44,48,52,76,87
					21718	F017/865/XP/ECO	30	24000	6500	85	1250	1188	31,33,44,48,52,76,87
25	T8	36	35.78	Med Bipin	21586	F025/827/XP/ECO	30	24000	2700	85	2175	2065	31,33,44,48,52,76,87
					21910	F025/830/XP/ECO	30	24000	3000	85	2175	2065	31,33,44,48,52,76,87
					21776	F025/835/XP/ECO	30	24000	3500	85	2175	2065	31,33,44,48,52,76,87
					21774	F025/841/XP/ECO	30	24000	4100	85	2175	2065	31,33,44,48,52,76,87

# OCTRON® AND OCTRON® CURVALUME® FLUORESCENT LAMPS

## OCTRON® 800 XP® Lamps

Nominal Wattage	Bulb	Nominal Length (in)	MOL (in)	Base	Product Number	Ordering Abbreviation	Pkg Qty	Avg Rated Life @3hrs/start	CCT (K)	Approx Lumens @25°C/77°F		Symbols & Footnotes	
										Initial	Mean		
25	T8	36	35.78	Med Bipin	22194	F025/850/XP/ECO	30	24000	5000	85	2175	2065	31,33,44,48, 52,76,87
					21719	F025/865/XP/ECO	30	24000	6500	85	2000	1900	31,33,44,48, 52,76,87
40	T8	60	59.61	Med Bipin	21912	F040/830/XP/ECO	30	24000	3000	85	3750	3560	31,33,44,48, 52,76,87
					21911	F040/835/XP/ECO	30	24000	3500	85	3750	3560	31,33,44,48, 52,76,87
					21916	F040/841/XP/ECO	30	24000	4100	85	3750	3560	31,33,44,48, 52,76,87
					21721	F040/865/XP/ECO	30	24000	6500	85	3650	3468	31,33,44,48, 52,76,87

## OCTRON® 700 XP® Lamps

Nominal Wattage	Bulb	Nominal Length (in)	MOL (in)	Base	Product Number	Ordering Abbreviation	Pkg Qty	Avg Rated Life @3hrs/start (@12hrs/start)	CCT (K)	Approx Lumens @25°C/77°F		Symbols & Footnotes	
										Initial	Mean		
32	T8	48	47.78	Med Bipin	21711	F032/730/XP/ECO	30	36000 (42000)	3000	78	2850	2705	31,33,44, 48,52,76,94
					22044	F032/735/XP/ECO	30	36000 (42000)	3500	78	2850	2705	31,33,44, 48,52,76,94
					21712	F032/741/XP/ECO	30	36000 (42000)	4100	78	2850	2705	31,33,44, 48,52,76,94

Nominal Wattage	Bulb	Nominal Length (in)	MOL (in)	Base	Product Number	Ordering Abbreviation	Pkg Qty	Avg Rated Life @3hrs/start	CCT (K)	Approx Lumens @25°C/77°F		Symbols & Footnotes	
										Initial	Mean		
17	T8	24	23.78	Med Bipin	21699	F017/735/XP/ECO	30	24000	3500	78	1325	1255	31,33,44,48, 52,76,87
					21637	F017/741/XP/ECO	30	24000	4100	78	1325	1255	31,33,44,48, 52,76,87
25	T8	36	35.78	Med Bipin	21698	F025/735/XP/ECO	30	24000	3500	78	2050	1945	31,33,44,48, 52,76,87
					21639	F025/741/XP/ECO	30	24000	4100	78	2050	1945	31,33,44,48, 52,76,87

## OCTRON® 800 Lamps

Nominal Wattage	Bulb	Nominal Length (in)	MOL (in)	Base	Product Number	Ordering Abbreviation	Pkg Qty	Avg Rated Life @3hrs/start (@12hrs/start)	CCT (K)	Approx Lumens @25°C/77°F		Symbols & Footnotes	
										Initial	Mean		
32	T8	48	47.78	Med Bipin	21777	F032/830/ECO	30	30000 (35000)	3000	85	2950	2802	21,31,33, 48,52,76,94
					21779	F032/835/ECO	30	30000 (35000)	3500	85	2950	2802	21,31,33, 48,52,76,94
					21781	F032/841/ECO	30	30000 (35000)	4100	85	2950	2802	21,31,33, 48,52,76,94
					22143	F032/850/ECO	30	30000 (35000)	5000	80	2800	2660	21,31,33, 48,52,76,94

Nominal Wattage	Bulb	Nominal Length (in)	MOL (in)	Base	Product Number	Ordering Abbreviation	Pkg Qty	Avg Rated Life @3hrs/start	CCT (K)	Approx Lumens @25°C/77°F		Symbols & Footnotes	
										Initial	Mean		
17	T8	24	23.78	Med Bipin	22135	F017/830/ECO	30	20000	3000	82	1350	1240	31,33,35,48, 52,76

## OCTRON® AND OCTRON® CURVALUME® FLUORESCENT LAMPS

### OCTRON® 800 Lamps

Nominal Wattage	Bulb	Nominal Length (in)	MOL (in)	Base	Product Number	Ordering Abbreviation	Pkg Qty	Avg Rated Life @3hrs/start	CCT (K)	CRI	Approx Lumens @25°C/77°F		Symbols & Footnotes
											Initial	Mean	
17	T8	24	23.78	Med Bipin	22136	F017/835/ECO	30	20000	3500	82	1350	1240	31,33,35,48,52,76
					22137	F017/841/ECO	30	20000	4100	82	1350	1240	31,33,35,48,52,76
25	T8	36	35.78	Med Bipin	22138	F025/830/ECO	30	20000	3000	82	2150	1975	31,33,35,48,52,76
					22139	F025/835/ECO	30	20000	3500	82	2150	1975	31,33,35,48,52,76
					22140	F025/841/ECO	30	20000	4100	82	2150	1975	31,33,35,48,52,76
40	T8	60	59.61	Med Bipin	22144	F040/830/ECO	30	20000	3000	82	3650	3473	31,33,35,48,52,76
					22145	F040/835/ECO	30	20000	3500	82	3650	3473	31,33,35,48,52,76
					22146	F040/841/ECO	30	20000	4100	82	3650	3473	31,33,35,48,52,76

### OCTRON® 700 Lamps

Nominal Wattage	Bulb	Nominal Length (in)	MOL (in)	Base	Product Number	Ordering Abbreviation	Pkg Qty	Avg Rated Life @3hrs/start	CCT (K)	CRI	Approx Lumens @25°C/77°F		Symbols & Footnotes
											Initial	Mean	
32	T8	48	47.78	Med Bipin	21997	F032/730/ECO	30	25000	3000	78	2800	2520	31,33,48,52,76,119
					21998	F032/735/ECO	30	25000	3500	78	2800	2520	31,33,48,52,76,119
					21678	F032/735/SL	30	25000	3500	78	2716	2444	31,33,52,96,98,119
					22181	F032/741/ECO/CVP	12	25000	4100	78	2800	2520	31,33,48,52,76,119
					21547	F032/741/ECO/SL	30	25000	4100	78	2716	2444	31,33,52,76,96,98,119
					21999	F032/741/ECO	30	25000	4100	78	2800	2520	31,33,48,52,76,119
					22141	F032/750/ECO	30	25000	5000	78	2650	2385	31,33,48,52,76,119
					22175	F032/765/ECO	30	25000	6500	78	2700	2430	31,33,48,52,76,119
14	T8	18	17.91	Med Bipin	21666	F013/735/ECO	30	20000	3500	75	830	745	31,33,35,48,52,76
					21667	F013/741/ECO	30	20000	4100	75	830	745	31,33,35,48,52,76
17	T8	24	23.78	Med Bipin	21918	F017/730/ECO	30	20000	3000	75	1300	1170	31,33,35,48,52,76
					21769	F017/735/ECO	30	20000	3500	75	1300	1170	31,33,35,48,52,76
					21770	F017/741/ECO	30	20000	4100	75	1300	1170	31,33,35,48,52,76
25	T8	36	35.78	Med Bipin	21937	F025/730/ECO	30	20000	3000	75	1950	1755	31,33,35,48,52,76

FLUORESCENT

**OCTRON® AND OCTRON® CURVALUME® FLUORESCENT LAMPS****OCTRON® 700 Lamps**

Nominal Wattage	Bulb	Nominal Length (in)	MOL (in)	Base	Product Number	Ordering Abbreviation	Pkg Qty	Avg Rated Life @3hrs/start	CCT (K)	Approx Lumens		Symbols & Footnotes	
										Initial	Mean		
25	T8	36	35.78	Med Bipin	21941	F025/735/ECO	30	20000	3500	75	1950	1755	31,33,35,48, 52,76
					21942	F025/741/ECO	30	20000	4100	75	1950	1755	31,33,35,48, 52,76
40	T8	60	59.61	Med Bipin	22102	F040/730/ECO	30	20000	3000	75	3500	3150	31,33,35,48, 52,76
					22103	F040/735/ECO	30	20000	3500	75	3500	3150	31,33,35,48, 52,76
					22104	F040/741/ECO	30	20000	4100	75	3500	3150	31,33,35,48, 52,76

**OCTRON® 800 XP® 8 Foot SUPERSAVER® Lamps**

Nominal Wattage	Bulb	Nominal Length (in)	MOL (in)	Base	Product Number	Ordering Abbreviation	Pkg Qty	Avg Rated Life @3hrs/start	CCT (K)	Approx Lumens		Symbols & Footnotes	
										Initial	Mean		
55	T8	96	94	Single Pin	22100	F096/835/XP/SS/ECO	24	18000	3500	85	5700	5415	7,31,33,76, 85
					22101	F096/841/XP/SS/ECO	24	18000	4100	85	5700	5415	7,31,33,76, 85

**OCTRON® 800 XP® 8 Foot Lamps**

Nominal Wattage	Bulb	Nominal Length (in)	MOL (in)	Base	Product Number	Ordering Abbreviation	Pkg Qty	Avg Rated Life @3hrs/start	CCT (K)	Approx Lumens		Symbols & Footnotes	
										Initial	Mean		
59	T8	96	94	Single Pin	22036	F096/830/XP/ECO	24	18000	3000	85	6100	5795	31,33,44,48, 76,85
					22034	F096/835/XP/ECO	24	18000	3500	85	6100	5795	31,33,44,48, 76,85
					22032	F096/841/XP/ECO	24	18000	4100	85	6100	5795	31,33,44,48, 76,85
					22174	F096/850/XP/ECO	24	18000	5000	85	6100	5795	31,33,44,48, 76,85

**OCTRON® 800 8 Foot Lamps**

Nominal Wattage	Bulb	Nominal Length (in)	MOL (in)	Base	Product Number	Ordering Abbreviation	Pkg Qty	Avg Rated Life @3hrs/start	CCT (K)	Approx Lumens		Symbols & Footnotes	
										Initial	Mean		
59		96	94	Single Pin	22147	F096/830/ECO	24	15000	3000	82	5900	5428	10,31,33, 48,76
					22148	F096/835/ECO	24	15000	3500	82	5900	5428	10,31,33, 48,76
					22149	F096/841/ECO	24	15000	4100	82	5900	5428	10,31,33, 48,76
					22173	F096/850/ECO	24	15000	5000	80	5900	5428	10,31,33, 48,76
86	T8	96	93.91	Recessed DC	22206	F096/835/HO/ECO	24	18000	3500	85	8200	7710	31,33,48,76
					22207	F096/841/HO/ECO	24	18000	4100	85	8200	7710	31,33,48,76

## OCTRON® AND OCTRON® CURVALUME® FLUORESCENT LAMPS

### OCTRON® 700 8 Foot Lamps

Nominal Wattage	Bulb	Nominal Length (in)	MOL (in)	Base	Product Number	Ordering Abbreviation	Pkg Qty	Avg Rated Life @3hrs/start	CCT (K)	CRI	Approx Lumens @25°C/77°F		Symbols & Footnotes
											Initial	Mean	
59	T8	96	94	Single Pin	22030	<b>F096/730/ECO</b>	24	15000	3000	75	5700	5130	☉   31,33,48,76,84
					21737	<b>F096/735/ECO</b>	24	15000	3500	75	5700	5130	☉   31,33,48,76,84
					21736	<b>F096/741/ECO</b>	24	15000	4100	75	5700	5130	☉   31,33,48,76,84
86	T8	96	93.91	Recessed DC	22204	<b>F096/735/H0/ECO</b>	24	18000	3500	78	8000	7520	☉   31,33,48,76
					22205	<b>F096/741/H0/ECO</b>	24	18000	4100	78	8000	7520	☉   31,33,48,76

### OCTRON® 800 XP® SUPERSAVER® CURVALUME® U-SHAPED Lamps - 1 5/8" Leg Spacing

The OCTRON® CURVALUME® lamps are made to the same color standards and may be used in conjunction with other SYLVANIA OCTRON lamps to meet the needs of lighting installations where OCTRON T8 systems are used. Since CURVALUME and linear OCTRON lamps of the same/similar wattages operate on the same ballasts, the types of ballasts used in an installation can be minimized. When OCTRON FBO31 lamps are used in 2X2 luminaires, the 2X2 luminaire can deliver light levels similar to 2X4 luminaires with the same number of linear OCTRON lamps. The nominal length of the CURVALUME lamp is measured from the base face to the outside of the glass bend.

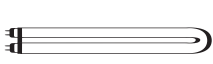
Nominal Wattage	Bulb	Nominal Length (in)	MOL (in)	Base	Product Number	Ordering Abbreviation	Pkg Qty	Avg Rated Life @3hrs/start	CCT (K)	CRI	Approx Lumens @25°C/77°F		Symbols & Footnotes
											Initial	Mean	
29	T8	22.5	22.6	Med Bipin	22195	<b>FBO29/830XP/SS/ECO</b>	15	24000	3000	85	2775	2636	31,33,44,54,76,87,95
					22196	<b>FBO29/835XP/SS/ECO</b>	15	24000	3500	85	2775	2636	31,33,44,54,76,87,95
					22197	<b>FBO29/841XP/SS/ECO</b>	15	24000	4100	85	2775	2636	31,33,44,54,76,87,95

### OCTRON® 800 XP® CURVALUME® U-SHAPED Lamps - 1 5/8" Leg Spacing

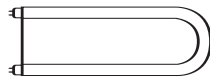
Nominal Wattage	Bulb	Nominal Length (in)	MOL (in)	Base	Product Number	Ordering Abbreviation	Pkg Qty	Avg Rated Life @3hrs/start	CCT (K)	CRI	Approx Lumens @25°C/77°F		Symbols & Footnotes
											Initial	Mean	
31	T8	22.5	22.6	Med Bipin	21693	<b>FBO31/830/XP/ECO</b>	15	24000	3000	85	2775	2636	☉   31,33,44,48,52,54,55,76,87
					21695	<b>FBO31/835/XP/ECO</b>	15	24000	3500	85	2775	2636	☉   31,33,44,48,52,54,55,76,87
					21696	<b>FBO31/841/XP/ECO</b>	15	24000	4100	85	2775	2636	☉   31,33,44,48,52,54,55,76,87

### OCTRON® CURVALUME® U-SHAPED Lamps - 1 5/8" Leg Spacing

Nominal Wattage	Bulb	Nominal Length (in)	MOL (in)	Base	Product Number	Ordering Abbreviation	Pkg Qty	Avg Rated Life @3hrs/start	CCT (K)	CRI	Approx Lumens @25°C/77°F		Symbols & Footnotes
											Initial	Mean	
31	T8	22.5	22.6	Med Bipin	21877	<b>FBO31/830</b>	15	20000	3000	82	2725	2507	31,33,35,48,52,54,55
					21878	<b>FBO31/835</b>	15	20000	3500	82	2725	2507	31,33,35,48,52,54,55
					21879	<b>FBO31/841</b>	15	20000	4100	82	2725	2507	31,33,35,48,52,54,55
16	T8	10.5	10.60	Med Bipin	21834	<b>FBO16/830</b>	15	20000	3000	82	1125	1035	31,33,35,48,52,54,55
					21835	<b>FBO16/835</b>	15	20000	3500	82	1125	1035	31,33,35,48,52,54,55



T8 U-Shaped 1-5/8"



T8 U-Shaped 6"

**OCTRON® AND OCTRON® CURVALUME® FLUORESCENT LAMPS****OCTRON® CURVALUME® U-SHAPED Lamps - 1 5/8" Leg Spacing**

Nominal Wattage	Bulb	Nominal Length (in)	MOL (in)	Base	Product Number	Ordering Abbreviation	Pkg Qty	Avg Rated Life @3hrs/start	CCT (K)	CRI	Approx Lumens		Symbols & Footnotes
											Initial	Mean	
16	T8	10.5	10.60	Med Bipin	21836	<b>FB016/841</b>	15	20000	4100	82	1125	1035	31,33,35,48,52,54,55
24	T8	16.5	16.6	Med Bipin	21874	<b>FB024/830</b>	15	20000	3000	82	1925	1771	31,33,35,48,52,54,55
					21875	<b>FB024/835</b>	15	20000	3500	82	1925	1771	31,33,35,48,52,54,55
					21876	<b>FB024/841</b>	15	20000	4100	82	1925	1771	31,33,35,48,52,54,55

**OCTRON® 800 XP® SUPERSAVER® CURVALUME® U-SHAPED Lamps - 6" Leg Spacing**

Nominal Wattage	Bulb	Nominal Length (in)	MOL (in)	Base	Product Number	Ordering Abbreviation	Pkg Qty	Avg Rated Life @3hrs/start	CCT (K)	CRI	Approx Lumens		Symbols & Footnotes
											Initial	Mean	
30	T8	22.5	22.6	Med Bipin	22170	<b>FB030/830XP/6/SS/ECO</b>	16	24000	3000	85	2800	2660	31,33,44,54,76,87,95
					22171	<b>FB030/835XP/6/SS/ECO</b>	16	24000	3500	85	2800	2660	31,33,44,54,76,87,95
					22172	<b>FB030/841XP/6/SS/ECO</b>	16	24000	4100	85	2800	2660	31,33,44,54,76,87,95

**OCTRON® 800 XP® CURVALUME® U-SHAPED Lamps - 6" Leg Spacing**

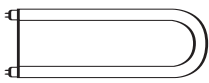
Nominal Wattage	Bulb	Nominal Length (in)	MOL (in)	Base	Product Number	Ordering Abbreviation	Pkg Qty	Avg Rated Life @3hrs/start	CCT (K)	CRI	Approx Lumens		Symbols & Footnotes
											Initial	Mean	
32	T8	22.5	22.6	Med Bipin	22054	<b>FB032/830XP/6/ECO</b>	16	24000	3000	85	2900	2755	31,33,44,48,52,54,76,87
					22055	<b>FB032/835XP/6/ECO</b>	16	24000	3500	85	2900	2755	31,33,44,48,52,54,76,87
					22057	<b>FB032/841XP/6/ECO</b>	16	24000	4100	85	2900	2755	31,33,44,48,52,54,76,87

**OCTRON® 800 CURVALUME® U-SHAPED Lamps - 6" Leg Spacing**

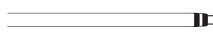
Nominal Wattage	Bulb	Nominal Length (in)	MOL (in)	Base	Product Number	Ordering Abbreviation	Pkg Qty	Avg Rated Life @3hrs/start	CCT (K)	CRI	Approx Lumens		Symbols & Footnotes
											Initial	Mean	
32		22.5	22.6	Med Bipin	21663	<b>FB032/830/6/ECO</b>	16	20000	3000	82	2850	2622	31,33,35,48,52,54,76
					21670	<b>FB032/835/6/ECO</b>	16	20000	3500	82	2850	2622	31,33,35,48,52,54,76
					21671	<b>FB032/841/6/ECO</b>	16	20000	4100	82	2850	2622	31,33,35,48,52,54,76

**OCTRON® 700 CURVALUME® U-SHAPED Lamps - 6" Leg Spacing**

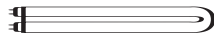
Nominal Wattage	Bulb	Nominal Length (in)	MOL (in)	Base	Product Number	Ordering Abbreviation	Pkg Qty	Avg Rated Life @3hrs/start	CCT (K)	CRI	Approx Lumens		Symbols & Footnotes
											Initial	Mean	
32		22.5	22.6	Med Bipin	22046	<b>FB032/730/6/ECO</b>	16	20000	3000	75	2750	2475	31,33,35,48,52,54,76
					22051	<b>FB032/735/6/ECO</b>	16	20000	3500	75	2750	2475	31,33,35,48,52,54,76



T8 U-Shaped 6"



T8 Med Bipin



T8 U-Shaped 1-5/8"

**OCTRON® AND OCTRON® CURVALUME® FLUORESCENT LAMPS****OCTRON® 700 CURVALUME® U-SHAPED Lamps - 6" Leg Spacing**

Nominal Wattage	Bulb	Nominal Length (in)	MOL (in)	Base	Product Number	Ordering Abbreviation	Pkg Qty	Avg Rated Life @3hrs/start	CCT (K)	CRI	Approx Lumens		Symbols & Footnotes
											Initial @25°C/77°F	Mean @25°C/77°F	
32	T8	22.5	22.6	Med Bipin	22052	<b>FB032/741/6/ECO</b>	16	20000	4100	75	2750	2475	31,33,35,48,52,54,76
					22053	<b>FB032/750/6/ECO</b>	16	20000	5000	75	2625	2363	31,33,35,48,52,54,76

**OCTRON® 5000K And 6500K for Displays, Signage and Backlighting**

Nominal Wattage	Bulb	Nominal Length (in)	MOL (in)	Base	Product Number	Ordering Abbreviation	Pkg Qty	Avg Rated Life @3hrs/start	CCT (K)	CRI	Approx Lumens		Symbols & Footnotes
											Initial @25°C/77°F	Mean @25°C/77°F	
14	T8	18	17.91	Med Bipin	21731	<b>F013/865XP/ECO</b>	30	24000	6500	85	850	805	31,33,44,48,52,76,87
15	T8	20	19.78	Med Bipin	21868	<b>F014/950/20in</b>	30	20000	5000	90	750	638	31,33,35,48,52
					21716	<b>F014/865XP/ECO</b>	30	24000	6500	85	1000	950	31,33,44,48,52,76,87
16	T8	10.5	10.60	Med Bipin	21726	<b>F016/865XP</b>	15	24000	6500	85	1125	1069	31,33,44,48,52,54,55,87
17	T8	24	23.78	Med Bipin	21871	<b>F017/950/24in</b>	30	20000	5000	90	800	680	31,33,35,48,52
					21718	<b>F017/865XP/ECO</b>	30	24000	6500	85	1250	1188	31,33,44,48,52,76,87
21	T8	30	29.78	Med Bipin	21869	<b>F021/950/30in</b>	30	20000	5000	90	1000	850	31,33,35,48,52
					21730	<b>F021/865XP/ECO</b>	30	24000	6500	85	1600	1520	31,33,44,48,52,76,87
25	T8	36	35.78	Med Bipin	21872	<b>F025/950/36in</b>	30	20000	5000	90	1250	1063	31,33,35,48,52
					21719	<b>F025/865XP/ECO</b>	30	24000	6500	85	2000	1900	31,33,44,48,52,76,87
28	T8	40	39.78	Med Bipin	21870	<b>F028/950/40in</b>	30	20000	5000	90	1400	1190	31,33,35,48,52
32	T8	48	47.78	Med Bipin	21880	<b>F032/950/48in</b>	30	25000	5000	90	1800	1530	31,33,48,52
					21720	<b>F032/865XP/ECO</b>	30	36000 ( )	6500	85	2850	2708	20,31,33,48,52,76,94
40	T8	60	59.61	Med Bipin	21873	<b>F040/950/60in</b>	30	20000	5000	90	2200	1870	31,33,35,48,52
					21721	<b>F040/865XP/ECO</b>	30	24000	6500	85	3650	3468	31,33,44,48,52,76,87

**OCTRON® Specialty**

Nominal Wattage	Bulb	Nominal Length (in)	MOL (in)	Base	Product Number	Ordering Abbreviation	Pkg Qty	Avg Rated Life @3hrs/start	CCT (K)	CRI	Approx Lumens		Symbols & Footnotes
											Initial @25°C/77°F	Mean @25°C/77°F	
32	T8	48	47.78	Med Bipin	21961	<b>F032/GOLD</b>	10	25000			1700	1530	31,33,35,43,48,52



## PENTRON® T5 FLUORESCENT LAMPS

PENTRON® T5 lamps are designed to operate on dedicated electronic programmed rapid start (also known as programmed start) ballasts only. These lamps are globally standardized and are designed to operate with their peak light output at 35°C (95°F) ambient temperature. For comparison purposes and to accommodate existing lamp measurement standards, ratings are given at both 25°C (77°F) and 35°C (95°F). The new lamp dimensions allow for innovative fixture designs and improved fixture performance

### PENTRON® High Performance T5 Lamps

Nominal Wattage	Bulb	Nominal Length (in)	MOL (in)	Base	Product Number	Ordering Abbreviation	Pkg Qty	Avg Rated Life @3hrs/start (@12hrs/start)	CCT (K)	CRI	Approx Lumens		Symbols & Footnotes
											Initial @25°C/77°F	Mean @35°C/95°F	
28	T5	48	45.8	Mini Bipin	20868	FP28/830/ECO	40	20000	3000	85	2600 2900	2418 2697	31,33,38,48,74,76
					20901	FP28/835/ECO	40	20000	3500	85	2600 2900	2418 2697	31,33,38,48,74,76
					20902	FP28/841/ECO	40	20000	4100	85	2600 2900	2418 2697	31,33,38,48,74,76
					22203	FP28/850/ECO	40	20000	5000	85	2545 2840	2367 2641	31,33,38,48,74,76
					20990	FP28/865/ECO	40	20000	6500	85	2400 2750	2232 2558	31,33,38,48,74,76
					20977	FP28RED 40/CS 1/SKU	40	20000			2100		15,31,33,38,48,74
					20978	FP28GREEN 40/CS 1/SKU	40	20000			3500		15,31,33,38,48,74
					20986	FP28BLUE 40/CS 1/SKU	40	20000			700		15,31,33,38,48,74
14	T5	24	22.2	Mini Bipin	20907	FP14/830/ECO	40	20000	3000	85	1200 1350	1116 1256	31,33,38,48,74,76
					20908	FP14/835/ECO	40	20000	3500	85	1200 1350	1116 1256	31,33,38,48,74,76
					20914	FP14/841/ECO	40	20000	4100	85	1200 1350	1116 1256	31,33,38,48,74,76
					20988	FP14/865/ECO	40	20000	6500	85	1100 1300	1045 1209	31,33,38,48,74,76
21	T5	36	34	Mini Bipin	20919	FP21/830/ECO	40	20000	3000	85	1900 2100	1767 1953	31,33,38,48,74,76
					20921	FP21/835/ECO	40	20000	3500	85	1900 2100	1767 1953	31,33,38,48,74,76
					20924	FP21/841/ECO	40	20000	4100	85	1900 2100	1767 1953	31,33,38,48,74,76
					20989	FP21/865/ECO	40	20000	6500	85	1750 2000	1662 1860	31,33,38,48,74,76
35	T5	60	57.6	Mini Bipin	20925	FP35/830/ECO	40	20000	3000	85	3300 3650	3069 3394	31,33,38,48,74,76
					20926	FP35/835/ECO	40	20000	3500	85	3300 3650	3069 3394	31,33,38,48,74,76
					20927	FP35/841/ECO	40	20000	4100	85	3300 3650	3069 3394	31,33,38,48,74,76

### PENTRON® PREMIER™ High Performance T5 Lamps

Nominal Wattage	Bulb	Nominal Length (in)	MOL (in)	Base	Product Number	Ordering Abbreviation	Pkg Qty	Avg Rated Life @3hrs/start (@12hrs/start)	CCT (K)	CRI	Approx Lumens		Symbols & Footnotes
											Initial @25°C/77°F	Mean @35°C/95°F	
28	T5	48	45.8	Mini Bipin	20948	FP28/830PM/ECO	40	20000	3000	85	2730 3050	2594 2898	31,33,38,48,74,76
					20943	FP28/835PM/ECO	40	20000	3500	85	2730 3050	2594 2898	31,33,38,48,74,76
					20944	FP28/841PM/ECO	40	20000	4100	85	2730 3050	2594 2898	31,33,38,48,74,76

## PENTRON® T5 FLUORESCENT LAMPS

### PENTRON® High Output, High Performance T5 Lamps

Nominal Wattage	Bulb	Nominal Length (in)	MOL (in)	Base	Product Number	Ordering Abbreviation	Pkg Qty	Avg Rated Life @3hrs/start (@12hrs/start)	CCT (K)	CRI	Approx Lumens		Symbols & Footnotes
											Initial @25°C/77°F	Mean @35°C/95°F	
54	T5	48	45.8	Mini Bipin	20903	FP54/830/HO/ECO	40	25000 (35000)	3000	85	4450	4138	31,33,38,48, 74,76
					20904	FP54/835/HO/ECO	40	25000 (35000)	3500	85	4450	4138	31,33,38,48, 74,76
					21020	FP54/835/HO/ECO/SL	40	25000 (35000)	3500	85	4316	4014	31,33,38,48, 74,76,96,98
					20906	FP54/841/HO/ECO	40	25000 (35000)	4100	85	4450	4138	31,33,38,48, 74,76
					21021	FP54/841/HO/ECO/SL	40	25000 (35000)	4100	85	4316	4014	31,33,48,74, 76,96,98
					20949	FP54/850/HO/ECO	40	25000 (35000)	5000	85	4375	4069	31,33,38,48, 74,76
					21022	FP54/850/HO/ECO/SL	40	25000 (35000)	5000	85	4243	3946	31,33,48,74, 76,96,98
					20862	FP54/865/HO/ECO	40	25000 (35000)	6500	85	4050	3766	31,33,38,48, 74,76
					20997	FP54/RED/HO	40	20000				3300	15,31,33,38,48,74
					20998	FP54/GREEN/HO	40	20000				5550	15,31,33,38,48,74
					20999	FP54/BLUE/HO	40	20000				1150	15,31,33,38,48,74
					24	T5	24	22.2	Mini Bipin	20928	FP24/830/HO/ECO	40	20000
20929	FP24/835/HO/ECO	40	20000	3500						85	1750	1627	31,33,38,48, 74,76
20931	FP24/841/HO/ECO	40	20000	4100						85	1750	1627	31,33,38,48, 74,76
39	T5	36	34	Mini Bipin	20932	FP39/830/HO/ECO	40	20000	3000	85	3100	2883	31,33,38,48, 74,76
					20933	FP39/835/HO/ECO	40	20000	3500	85	3101	2883	31,33,38,48, 74,76
					20934	FP39/841/HO/ECO	40	20000	4100	85	3102	2883	31,33,38,48, 74,76
80	T5	60	57.6	Mini Bipin	20935	FP80/830/HO/ECO	40	20000	3000	85	6150	5719	31,33,38,48, 74,76
					20936	FP80/835/HO/ECO	40	20000	3500	85	6151	5720	31,33,38,48, 74,76
					20937	FP80/841/HO/ECO	40	20000	4100	85	6152	5721	31,33,38,48, 74,76

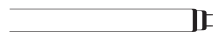
### PENTRON® High Output, Wide Temperature Range T5 Lamps

Nominal Wattage	Bulb	Nominal Length (in)	MOL (in)	Base	Product Number	Ordering Abbreviation	Pkg Qty	Avg Rated Life @3hrs/start (@12hrs/start)	CCT (K)	CRI	Approx Lumens		Symbols & Footnotes
											Initial @25°C/77°F	Mean @35°C/95°F	
54	T5	48	45.8	Mini Bipin	21042	FP54/835/C/HO/ECO	40	25000 (35000)	3500	85	4900	4655	31,33,38,48, 74,76
					21043	FP54/841/C/HO/ECO	40	25000 (35000)	4100	85	4900	4655	31,33,38,48, 74,76
					21044	FP54/850/C/HO/ECO	40	25000 (35000)	5000	85	4800	4560	31,33,38,48, 74,76

FLUORESCENT



Circline 4-Pin T5



T12 Med Bipin

## PENTRON® T5 FLUORESCENT LAMPS

### PENTRON® Circline T5 Lamps

Nominal Wattage	Bulb	Outside Diameter (in)		Product Number	Ordering Abbreviation	Pkg Qty	Avg Rated Life @3hrs/start (@12hrs/start)	CCT (K)	CRI	Approx Lumens @25°C/77°F		Symbols & Footnotes
			Base							Initial	Mean	
22	T5	8.66 - 9.06	2GX13	20702	<b>FPC22/830</b>	12	12000	3000	82	1800	1585	31,33,38,48,74
				20712	<b>FPC22/835</b>	12	12000	3500	82	1800	1585	31,33,38,48,74
				20715	<b>FPC22/841</b>	12	12000	4100	82	1800	1585	31,33,38,48,74
40	T5	11.54 - 12.01	2GX13	20731	<b>FPC40/830</b>	12	12000	3000	82	3200	2815	31,33,38,48,74
				20732	<b>FPC40/835</b>	12	12000	3500	82	3200	2815	31,33,38,48,74
				20733	<b>FPC40/841</b>	12	12000	4100	82	3200	2815	31,33,38,48,74
55	T5	11.54 - 12.01	2GX13	20741	<b>FPC55/830/HO</b>	12	12000	3000	82	4000	3520	31,33,38,48,74
				20750	<b>FPC55/835/HO</b>	12	12000	3500	82	4000	3520	31,33,38,48,74
				20751	<b>FPC55/841/HO</b>	12	12000	4100	82	4000	3520	31,33,38,48,74

### RAPID START LAMPS

Rapid Start lamps, 3-foot and 4-foot in length, are typically designated by their wattage: e.g. F40 = Fluorescent 40W. Therefore lamps previously designated as F30T12/RS/SS, F40/SS and FB40/SS energy saving types will now be designated as F25T12/RS/SS, F34/SS and FB34/SS, respectively to comply with standard lamp designation nomenclature for these families of lamps.

### 3' SUPERSAVER® Rapid Start Lamps

Nominal Wattage	Bulb	Nominal Length (in)		Base	Product Number	Ordering Abbreviation	Pkg Qty	Avg Rated Life @3hrs/start	CCT (K)	CRI	Approx Lumens @25°C/77°F		Symbols & Footnotes
		MOL (in)									Initial	Mean	
25	T12	36	35.78	Med Bipin	23473	<b>F25T12/WW/RS/SS</b> <i>formerly F30T12/WW/RS/SS</i>	30	18000	3000	52	1975	1679	22,31,33
					23485	<b>F25T12/D35/RS/SS</b> <i>formerly F30T12/D35/RS/SS</i>	30	18000	3500	70	2050	1804	22,31,33
					23472	<b>F25T12/CW/RS/SS</b> <i>formerly F30T12/CW/RS/SS</i>	30	18000	4200	60	1925	1636	22,31,33

### 3' Standard Rapid Start Lamps

Nominal Wattage	Bulb	Nominal Length (in)		Base	Product Number	Ordering Abbreviation	Pkg Qty	Avg Rated Life @3hrs/start	CCT (K)	CRI	Approx Lumens @25°C/77°F		Symbols & Footnotes
		MOL (in)									Initial	Mean	
30	T12	36	35.78	Med Bipin	23490	<b>F30T12/SW/RP</b>	6	18000	3000	52	2275	1934	30,31,33,48
					23482	<b>F30T12/WW/RS</b>	30	18000	3000	52	2275	1934	30,31,33,48
					23474	<b>F30T12/D830/RS</b>	30	18000	3000	80	2290	2061	30,31,33,48
					23484	<b>F30T12/D35/RS</b>	30	18000	3500	70	2250	1980	30,31,33,48
					23139	<b>F30T12/D835/RS</b>	30	18000	3500	80	2290	2061	30,31,33,48
					23493	<b>F30T12/CW/RP</b>	6	18000	4200	60	2200	1870	30,31,33,48
					23476	<b>F30T12/CW/RS</b>	30	18000	4200	60	2200	1870	30,31,33,48
					23487	<b>F30T12/CW/RS/UPC</b>	30	18000	4200	60	2200	1870	30,31,33,48
					23478	<b>F30T12/D/RS</b>	30	18000	6500	76	1900	1615	30,31,33,48

### 4' SUPERSAVER® Rapid Start Lamps

Nominal Wattage	Bulb	Nominal Length (in)		Base	Product Number	Ordering Abbreviation	Pkg Qty	Avg Rated Life @3hrs/start	CCT (K)	CRI	Approx Lumens @25°C/77°F		Symbols & Footnotes
		MOL (in)									Initial	Mean	
34	T12	48	47.78	Med Bipin	24538	<b>F34WW/SS/ECO</b> <i>formerly F40WW/SS/ECO</i>	30	20000	3000	52	2750	2365	2,24,30,31,33,56,76
					24535	<b>F34/D30/SS/ECO</b> <i>formerly F40/D30/SS/ECO</i>	30	20000	3000	70	2800	2520	2,24,30,31,33,56,76

## RAPID START LAMPS

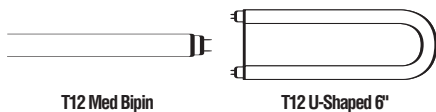
### 4' SUPERSAVER® Rapid Start Lamps

Nominal Wattage	Bulb	Nominal Length (in)	MOL (in)	Base	Product Number	Ordering Abbreviation	Pkg Qty	Avg Rated Life @3hrs/start	CCT (K)	CRI	Approx Lumens @25°C/77°F		Symbols & Footnotes
											Initial	Mean	
34	T12	48	47.78	Med Bipin	24589	<b>F34/D830/SS</b> <i>formerly F40/D830/SS</i>	30	20000	3000	80	2900	2610	☉  2,24,30,31,33,56
					24544	<b>F34/D830/SS/ECO</b> <i>formerly F40/D830/SS/ECO</i>	30	20000	3000	80	2900	2610	☉  2,24,30,31,33,56,76
					24591	<b>F34W/SS</b> <i>formerly F40W/SS</i>	30	20000	3450	57	2750	2365	☉ 2,24,30,31,33,56
					24585	<b>F34/D35/SS</b> <i>formerly F40/D35/SS</i>	30	20000	3500	70	2800	2520	☉  2,24,30,31,33,56
					24522	<b>F34/D35/SS/CVP</b> <i>formerly F40/D35/SS/CVP</i>	10	20000	3500	70	2800	2520	☉  2,24,30,31,33,56
					24540	<b>F34/D35/SS/ECO</b> <i>formerly F40/D35/SS/ECO</i>	30	20000	3500	70	2800	2520	☉  2,24,30,31,33,56,76
					24547	<b>F34/D835/SS/ECO</b> <i>formerly F40/D835/SS/ECO</i>	30	20000	3500	80	2900	2610	☉  2,24,30,31,33,56,76
					24542	<b>F34/D41/SS/ECO</b> <i>formerly F40/D41/SS/ECO</i>	30	20000	4100	70	2800	2520	☉  2,24,30,31,33,56,76
					24554	<b>F34/D841/SS/ECO</b> <i>formerly F40/D841/SS/ECO</i>	30	20000	4100	80	2900	2610	☉  2,24,30,31,33,56,76
					24588	<b>F34CW/SS</b> <i>formerly F40CW/SS</i>	30	20000	4100	87	1925	1656	2,24,30,31,33,56
					24566	<b>F34LW/SS/ECO</b> <i>formerly F40LW/SS/ECO</i>	30	20000	4150	48	2825	2430	☉  2,24,30,31,33,56,76
					24590	<b>F34LW/SS</b> <i>formerly F40LW/SS</i>	30	20000	4150	48	2825	2430	☉ 2,24,30,31,33,56
					24516	<b>F34CW/SS/10</b> <i>formerly F40CW/SS/10</i>	10	20000	4200	60	2650	2279	☉ 2,24,30,31,33,56
					24524	<b>F34CW/SS/CVP</b> <i>formerly F40/CW/SS/CVP</i>	10	20000	4200	60	2650	2279	☉ 2,24,30,31,33,56
					24396	<b>F34CW/SS/SL</b> <i>formerly F40CW/SS/SL</i>	30	20000	4200	60	2570	2313	☉ 2,24,30,31,33,96,98
					24596	<b>F34CW/SS/ECO</b> <i>formerly F40CW/SS/ECO</i>	30	20000	4200	60	2650	2279	☉  2,24,30,31,33,56,76
					24632	<b>F34CW/SS/ECO/CVP</b> <i>formerly F40/CW/SS/ECO/CVP</i>	10	20000	4200	60	2650	2279	☉  2,24,30,31,33,56,76
					24642	<b>F34CW/SS/ECO/CVP30</b> <i>formerly F40CW/SS/ECO/CVP30</i>	30	20000	4200	60	2650	2279	☉  2,24,30,31,33,56,76
					24633	<b>F34CW/SS/ECO/RP</b> <i>formerly F40/CW/SS/ECO/RP</i>	30	20000	4200	60	2650	2279	☉  2,24,30,31,33,48,56,76
					24599	<b>F34/DX/SS</b> <i>formerly F40/DX/SS</i>	30	20000	6500	88	1930	1565	2,24,30,31,33,56
24706	<b>F34/D865/SS</b> <i>formerly F40/D865/SS</i>	30	20000	6500	80	2650	2385	☉  2,24,30,31,33,56					

### 4' Standard Rapid Start Lamps

Nominal Wattage	Bulb	Nominal Length (in)	MOL (in)	Base	Product Number	Ordering Abbreviation	Pkg Qty	Avg Rated Life @3hrs/start	CCT (K)	CRI	Approx Lumens @25°C/77°F		Symbols & Footnotes
											Initial	Mean	
40	T12	48	47.78	Med Bipin	24521	<b>F40/D30/ECO</b>	30	20000	3000	70	3200	2880	☉  2,30,31,33,48,56,64,76

FLUORESCENT



T12 Med Bipin

T12 U-Shaped 6"

## RAPID START LAMPS

### 4' Standard Rapid Start Lamps

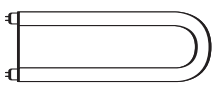
Nominal Wattage	Bulb	Nominal Length (in)	MOL (in)	Base	Product Number	Ordering Abbreviation	Pkg Qty	Avg Rated Life @3hrs/start	CCT (K)	Approx Lumens		Symbols & Footnotes	
										Initial	Mean @25°C/77°F		
40	T12	48	47.78	Med Bipin	24543	<b>F40/D830/ECO</b>	30	20000	3000	80	3300	2970	☼   2,30,31,33,48,56,64,76
					24537	<b>F40/D35/ECO</b>	30	20000	3500	70	3200	2880	☼   2,30,31,33,48,56,64,76
					24546	<b>F40/D835/ECO</b>	30	20000	3500	80	3300	2970	☼   2,30,31,33,48,56,64,76
					24438	<b>F40N</b>	30	20000	3600	86	2100	1806	2,30,31,33,48,56,64
					24442	<b>F40CWX 10/CS</b>	10	20000	4100	87	2150	1849	2,30,31,33,48,56,64
					24441	<b>F40CWX</b>	30	20000	4100	87	2150	1849	2,30,31,33,48,56,64
					24541	<b>F40/D41/ECO</b>	30	20000	4100	70	3200	2880	☼   2,30,31,33,48,56,64,76
					24553	<b>F40/D841/ECO</b>	30	20000	4100	80	3300	2970	☼   2,30,31,33,48,56,64,76
					24584	<b>F40/D41</b>	30	20000	4100	70	3200	2880	☼  2,30,31,33,48,56,64
					24683	<b>F40DSGN50</b>	30	20000	5000	90	2200	1892	2,30,31,33,48,56,64
					24477	<b>F40/DX</b>	30	20000	6500	88	2180	1770	2,30,31,33,48,56,64
					24570	<b>F40/D865</b>	30	20000	6500	80	3000	2700	☼  2,30,31,33,48,56,64
					24673	<b>F40/GO</b>	10	20000			1980		2,30,31,33,48,56,64

### CURVALUME® SUPERSAVER® Rapid Start Lamps – U-Shaped, 6” Leg Spacing

Nominal Wattage	Bulb	Nominal Length (in)	MOL (in)	Base	Product Number	Ordering Abbreviation	Pkg Qty	Avg Rated Life @3hrs/start	CCT (K)	Approx Lumens		Symbols & Footnotes	
										Initial	Mean @25°C/77°F		
34	T12	22.5	22.6	Med Bipin	24062	<b>FB34/WW/6/SS/UPC</b> <i>formerly FB40/WW/6/SS</i>	12	18000	3000	52	2650	2279	☼ 24,30,31,33
					24052	<b>FB34/WW/6/SS/ECO</b> <i>formerly FB40/WW/6/SS/ECO</i>	12	18000	3000	52	2650	2279	☼  24,30,31,33,76
					24065	<b>FB34/D35/6/SS</b> <i>formerly FB40/D35/SS</i>	12	18000	3500	70	2730	2457	☼  24,30,31,33
					24059	<b>FB34/CW/6/SS/UPC</b> <i>formerly FB40/CW/SS/6</i>	12	18000	4200	60	2600	2236	☼ 24,30,31,33
					24054	<b>FB34/CW/6/SS/ECO</b> <i>formerly FB40/CW/6/SS/ECO</i>	12	18000	4200	60	2600	2236	☼  24,30,31,33,76

### CURVALUME® Standard Rapid Start Lamps – U-Shaped, 6” Leg Spacing

Nominal Wattage	Bulb	Nominal Length (in)	MOL (in)	Base	Product Number	Ordering Abbreviation	Pkg Qty	Avg Rated Life @3hrs/start	CCT (K)	Approx Lumens		Symbols & Footnotes	
										Initial	Mean @25°C/77°F		
40	T12	22.5	22.6	Med Bipin	24080	<b>FB40/D30/6</b>	12	18000	3000	70	3050	2745	☼  30,31,33,48
					24017	<b>FB40/D830/6</b>	12	18000	3000	80	3200	2880	☼  30,31,33,48
					24081	<b>FB40/D35/6</b>	12	18000	3500	70	3050	2745	☼  30,31,33,48
					24004	<b>FB40/CWX/6</b>	12	18000	4100	87	2100	1806	30,31,33,48



T12 U-Shaped 6"



Circline 4-Pin T9



T12 RDC

## RAPID START LAMPS

### CURVALUME® Standard Rapid Start Lamps – U-Shaped, 6" Leg Spacing

Nominal Wattage	Bulb	Nominal Length (in)	MOL (in)	Base	Product Number	Ordering Abbreviation	Pkg Qty	Avg Rated Life @3hrs/start	CCT (K)	CRI	Approx Lumens @25°C/77°F		Symbols & Footnotes
											Initial	Mean	
40	T12	22.5	22.6	Med Bipin	24082	<b>FB40/D41/6</b>	12	18000	4100	70	3050	2745	30,31,33,48

### Circline T9 Rapid Start Lamps

Nominal Wattage	Bulb	Outside Diameter (in)	Base	Product Number	Ordering Abbreviation	Pkg Qty	Avg Rated Life @3hrs/start (@12hrs/start)	CCT (K)	CRI	Approx Lumens @25°C/77°F		Symbols & Footnotes
										Initial	Mean	
20	T9	6.25 - 6.75	4 PIN	20155	<b>FC6T9/WW/RS</b>	12	8000	3000	52	800	696	31,33,42,48
				20156	<b>FC6T9/CW/RS</b>	12	8000	4200	60	750	653	31,33,42,48
22	T9	8.00 - 8.50	4 PIN	20088	<b>FC8T9/WW/RS</b>	12	12000	3000	52	1050	914	31,33,42,48
				20209	<b>FC8T9/DSW/RP</b>	6	12000	3000	70	1100	990	31,33,42,48
				20151	<b>FC8T9/CW/RS/6 PACK</b>	6	12000	4200	60	1050	914	31,33,42,48
				20148	<b>FC8T9/CW/RS</b>	12	12000	4200	60	1050	914	31,33,42,48
				20080	<b>FC8T9/D/RS</b>	12	12000	6500	76	900	783	31,33,42,48
30	T9	8.00 - 8.50	4 PIN	20210	<b>FC8T9/830/EL</b>	6	10000	3000	80	1850	1591	31,33,40,49,79,81
32	T9	11.5 - 12.0	4 PIN	20233	<b>FC12T9/DSW/RP</b>	6	15000	3000	70	2100	1806	31,33,42,48
				20037	<b>FC12T9/WW/RS</b>	12	15000	3000	52	1950	1697	31,33,42,48
				20143	<b>FC12T9/CW/RS/6 PACK</b>	6	15000	4200	60	1925	1675	31,33,42,48
				20142	<b>FC12T9/CW/RS</b>	12	15000	4200	60	1925	1675	31,33,42,48
				20030	<b>FC12T9/D/RS</b>	12	15000	6500	76	1650	1436	31,33,42,48
40	T9	15.6 - 16.0	4 PIN	20057	<b>FC16T9/WW/RS</b>	12	18000	3000	52	2800	2436	31,33,42,48
				20132	<b>FC16T9/CW/RS</b>	12	18000	4200	60	2750	2393	31,33,42,48
				20072	<b>FC16T9/D/RS</b>	12	18000	6500	76	2350	2045	31,33,42,48

### High Output (800mA) SUPERSAVER® Rapid Start Lamps

Nominal Wattage	Bulb	Nominal Length (in)	MOL (in)	Base	Product Number	Ordering Abbreviation	Pkg Qty	Avg Rated Life @3hrs/start	CCT (K)	CRI	Approx Lumens @25°C/77°F		Symbols & Footnotes
											Initial	Mean	
55	T12	48	46	Recessed DC	25137	<b>F48T12D35/HO/SS</b>	30	12000	3500	70	3750	3375	27,31,33,97
95	T12	96	93.91	Recessed DC	25011	<b>F96T12/WW/HO/SS</b>	15	12000	3000	52	7700	6237	27,31,33,97
					25024	<b>F96T12/D35/HO/SS</b>	15	12000	3500	48	8350	7515	27,31,33,97
					25023	<b>F96T12/D41/HO/SS</b>	15	12000	4100	70	8350	7515	27,31,33,97
					25025	<b>F96T12/LW/HO/SS</b>	15	12000	4150	48	8000	6480	27,31,33,97
					25010	<b>F96T12/CW/HO/SS</b>	15	12000	4200	60	8000	6480	27,31,33,97
					25001	<b>F96T12/CW/HO/SS/ECO</b>	15	12000	4200	60	8000	6480	27,31,33,76,97

### High Output (800mA) Standard Rapid Start Lamps

Nominal Wattage	Bulb	Nominal Length (in)	MOL (in)	Base	Product Number	Ordering Abbreviation	Pkg Qty	Avg Rated Life @3hrs/start	CCT (K)	CRI	Approx Lumens @25°C/77°F		Symbols & Footnotes
											Initial	Mean	
25	T12	18	15.91	Recessed DC	25303	<b>F18T12/DSGN50/HO</b>	30	9000	5000	90	850	740	31,33,48
35	T12	24	21.91	Recessed DC	25313	<b>F24T12/CW/HO</b>	30	9000	4200	60	1650	1337	31,33,48
					25312	<b>F24T12/DSGN50/HO</b>	30	9000	5000	90	1200	1044	31,33,48
					25314	<b>F24T12/D/HO</b>	30	9000	6500	76	1400	1134	31,33,48



## RAPID START LAMPS

### High Output (800mA) Standard Rapid Start Lamps

Nominal Wattage	Bulb	Nominal Length (in)	MOL (in)	Base	Product Number	Ordering Abbreviation	Pkg Qty	Avg Rated Life @3hrs/start	CCT (K)	Approx Lumens		Symbols & Footnotes	
										Initial	Mean		
										GRI	@25°C/77°F		
42	T12	30	27.91	Recessed DC	25322	F30T12/CW/HO	30	9000	4200	60	2250	1825	31,33,48
45	T12	36	33.91	Recessed DC	25333	F36T12/CW/HO	30	9000	4200	60	2850	2309	31,33,48
					25334	F36T12/DSGN50/HO	30	9000	5000	90	2100	1701	CRU 31,33,48
					25332	F36T12/D/HO	30	9000	6500	76	2500	2025	CRU 31,33,48
55	T12	42	39.91	Recessed DC	25342	F42T12/CW/HO	30	9000	4200	60	3400	2754	31,33,48
					25344	F42T12/DSGN50/HO	30	9000	5000	90	2550	2066	CRU 31,33,48
					25343	F42T12/D/HO	30	9000	6500	76	3050	2471	CRU 31,33,48
60	T12	48	46	Recessed DC	25147	F48T12/WW/HO	30	12000	3000	52	4130	3345	31,33,48,97
					25148	F48T12/D830/HO	30	12000	3000	80	4400	4048	CRU 31,33,48,97
					25154	F48T12/D35/HO	30	12000	3500	70	4250	3825	CRU 31,33,48,97
					25136	F48T12/D41/HO	30	12000	4100	70	4250	3443	CRU 31,33,48,97
					25146	F48T12/CW/HO	30	12000	4200	60	4050	3281	31,33,48,97
					25122	F48T12/CW/HO/ECO	30	12000	4200	60	4050	3281	31,33,48,76,97
					25153	F48T12/DSGN50/HO	30	12000	5000	90	3050	2471	CRU 31,33,48,97
					25150	F48T12/D/HO	30	12000	6500	76	3600	2916	CRU 31,33,48,97
75	T12	60	57.91	Recessed DC	25128	F60T12/D35/HO	30	12000	3500	70	5600	5040	CRU 31,33,48,97
					25126	F60T12/CW/HO	30	12000	4200	60	5200	4212	31,33,48,97
					25119	F60T12/DSGN50/HO	30	12000	5000	90	3850	3119	CRU 31,33,48,97
					25120	F60T12/D/HO	30	12000	6500	76	4600	3826	CRU 31,33,48,97
80	T12	64	61.91	Recessed DC	25352	F64T12/CW/HO	30	12000	4200	60	5750	4658	31,33,48,97
					25355	F64T12/DSGN50/HO	30	12000	5000	90	4200	3402	CRU 31,33,48,97
					25353	F64T12/D/HO	30	12000	6500	76	4900	3969	CRU 31,33,48,97
85	T12	72	69.91	Recessed DC	25098	F72T12/D830/HO	15	12000	3000	80	6750	6210	CRU 1,31,33,48,97
					25177	F72T12/WW/HO	15	12000	3000	52	6400	5184	1,31,33,48,97
					27249	F72T12/D35/HO	15	12000	3500	70	6650	5985	CRU 1,31,33,48,97
					25281	F72T12/D835/HO	15	12000	3500	80	6750	6210	CRU 1,31,33,48,97
					25182	F72T12/N/HO	15	12000	3600	86	4400	3564	CRU 1,31,33,48,97
					27245	F72T12/D41/HO	15	12000	4100	70	6650	5985	CRU 1,31,33,48,97
					25176	F72T12/CW/HO	15	12000	4200	60	6250	5063	1,31,33,48,97
					25171	F72T12/CW/HO/ECO	15	12000	4200	60	6250	5063	1,31,33,48,76
					25190	F72T12/DSGN50/HO	15	12000	5000	90	4600	3726	CRU 1,31,33,48,97
					25189	F72T12/D/HO	15	12000	6500	76	5550	4496	CRU 1,31,33,48,97
100	T12	84	81.91	Recessed DC	25384	F84T12/CW/HO	15	12000	4200	60	7550	6115	31,33,48,97
					25386	F84T12/DSGN50/HO	15	12000	5000	90	5600	4536	CRU 31,33,48,97
					25385	F84T12/D/HO	15	12000	6500	76	6700	5427	CRU 31,33,48,97
110	T12	96	93.91	Recessed DC	25149	F96T12/D30/HO	15	12000	3000	70	9050	8145	CRU 31,33,48,97
					25152	F96T12/D830/HO	15	12000	3000	80	9400	8648	CRU 31,33,48,97
					25165	F96T12/D35/HO	15	12000	3500	70	9050	8145	CRU 31,33,48,97
					25166	F96T12/D835/HO	15	12000	3500	80	9400	8648	CRU 31,33,48,97
					25162	F96T12/N/HO	15	12000	3600	86	6050	4900	CRU 31,33,48,97
					25184	F96T12/D41/HO	15	12000	4100	70	9050	8145	CRU 31,33,48,97



## RAPID START LAMPS

### High Output (800mA) Standard Rapid Start Lamps

Nominal Wattage	Bulb	Nominal Length (in)	MOL (in)	Base	Product Number	Ordering Abbreviation	Pkg Qty	Avg Rated Life @3hrs/start	CCT (K)	CRI	Approx Lumens @25°C/77°F		Symbols & Footnotes
											Initial	Mean	
110	T12	96	93.91	Recessed DC	25164	<b>F96T12/DSGN50/HO</b>	15	12000	5000	90	6450	5225	31,33,48,97
					25185	<b>F96T12/D865/HO</b>	15	12000	6500	80	8800	7920	31,33,48,97

### High Output (800mA) Rapid Start Lamps for Cold Temperature Operation

Nominal Wattage	Bulb	Nominal Length (in)	MOL (in)	Base	Product Number	Ordering Abbreviation	Pkg Qty	Avg Rated Life @3hrs/start	CCT (K)	CRI	Approx Lumens @25°C/77°F		Symbols & Footnotes
											Initial	Mean	
110		96	93.91	Recessed DC	25118	<b>F96T12/CW/HO/COLD/10/CVP</b>	10	12000	4200	60	8600	6966	31,33,48,91,97
					25129	<b>F96T12/CW/HO/CT/ECO</b>	15	12000	4200	60	8600	6966	31,33,48,76,91,97
					25134	<b>F96T12/CW/HO/COLD TEMP</b>	15	12000	4200	60	8600	6966	31,33,48,91,97
					25135	<b>F96T12/D/HO/COLD TEMP</b>	15	12000	6500	76	7600	6156	31,33,48,91,97

### Very High Output (1500mA) SUPERSAVER® Rapid Start Lamps

Nominal Wattage	Bulb	Nominal Length (in)	MOL (in)	Base	Product Number	Ordering Abbreviation	Pkg Qty	Avg Rated Life @3hrs/start	CCT (K)	CRI	Approx Lumens @25°C/77°F		Symbols & Footnotes
											Initial	Mean	
195	T12	96	93.91	Recessed DC	25296	<b>F96T12/CW/VHO/SS</b>	15	10000	4200	60	13000	9100	28,31,33,48,108

### Very High Output (1500mA) Standard Rapid Start Lamps

Nominal Wattage	Bulb	Nominal Length (in)	MOL (in)	Base	Product Number	Ordering Abbreviation	Pkg Qty	Avg Rated Life @3hrs/start	CCT (K)	CRI	Approx Lumens @25°C/77°F		Symbols & Footnotes
											Initial	Mean	
115	T12	48	46	Recessed DC	25248	<b>F48T12/CW/VHO</b>	30	10000	4200	60	6600	4620	31,33,48,108
					25249	<b>F48T12/CW/VHO/LT</b>	30	10000	4200	60	6750	5250	31,33,48,58,88,108
					25244	<b>F48T12/D/VHO</b>	30	10000	6500	76	5600	3920	31,33,48,108
135	T12	60	57.91	Recessed DC	25262	<b>F60T12/CW/VHO</b>	30	10000	4200	60	8700	6090	31,33,48,108
141	T12	60	57.91	Recessed DC	25263	<b>F60T12/CW/VHO/LT</b>	30	10000	4200	60	8700	6090	31,33,48,58,88,108
160	T12	72	69.91	Recessed DC	25272	<b>F72T12/CW/VHO</b>	15	10000	4200	60	10600	7420	31,33,48,108
					25274	<b>F72T12/CW/VHO/LT</b>	15	10000	4200	60	11000	7700	31,33,48,58,88,108
					25270	<b>F72T12/D/VHO</b>	15	10000	6500	76	9400	6580	31,33,48,108
215	T12	96	93.91	Recessed DC	25209	<b>F96T12/CW/VHO</b>	15	10000	4200	60	14000	9800	31,33,48,108
					25292	<b>F96T12/CW/VHO/LT</b>	15	10000	4200	60	15000	10500	31,33,48,58,88,108
					25210	<b>F96T12/D/VHO</b>	15	10000	6500	76	11600	8120	31,33,48,108

## INSTANT START LAMPS

### Slimline SUPERSAVER® Instant Start Lamps

Nominal Wattage	Bulb	Nominal Length (in)	MOL (in)	Base	Product Number	Ordering Abbreviation	Pkg Qty	Avg Rated Life @3hrs/start	CCT (K)	CRI	Approx Lumens @25°C/77°F		Symbols & Footnotes
											Initial	Mean	
32	T12	48	46.00	Single Pin	24829	<b>F48T12/D35/SS</b>	30	9000	3500	70	2575	2369	26,31,33
					24825	<b>F48T12/D41/SS</b>	30	9000	4100	70	2575	2369	26,31,33
					24823	<b>F48T12/CW/SS</b>	30	9000	4200	60	2450	2200	26,31,33
57	T12	96	94	Single Pin	29900	<b>F96T12/D41/SSP/ECO</b>	15	12000	4100	82	5600	5152	26,31,33,76,97

## INSTANT START LAMPS

### Slimline SUPERSAVER® Instant Start Lamps

Nominal Wattage	Bulb	Nominal Length (in)	MOL (in)	Base	Product Number	Ordering Abbreviation	Pkg Qty	Avg Rated Life @3hrs/start	CCT (K)	Approx Lumens		Symbols & Footnotes	
										Initial	Mean		
										@25°C/77°F			
60	T12	96	94	Single Pin	29795	F96T12/WW/SS/ECO	15	12000	3000	52	5500	4840	☼ 26,31,33,76,97
					29809	F96T12/D30/SS/ECO	15	12000	3000	70	5600	5152	☼ 26,31,33,76,97
					29854	F96T12/D830/SS/ECO	15	12000	3000	80	5800	5452	☼ 26,31,33,76,97
					29819	F96T12/D35/SS	15	12000	3500	70	5600	5152	☼ 26,31,33,97
					29808	F96T12/D35/SS/ECO	15	12000	3500	70	5600	5152	☼ 26,31,33,76,97
					29811	F96T12/D835/SS	15	12000	3500	80	5800	5452	☼ 26,31,33,97
					29859	F96T12/D835/SS/ECO	15	12000	3500	80	5800	5452	☼ 26,31,33,76,97
					29853	F96T12/D41/SS/ECO	15	12000	4100	70	5600	5152	☼ 26,31,33,76,97
					29860	F96T12/D841/SS/ECO	15	12000	4100	80	5800	5452	☼ 26,31,33,76,97
					29820	F96T12/LW/SS	15	12000	4150	48	5600	4928	☼ 26,31,33,97
					29815	F96T12/CW/SS	15	12000	4200	60	5300	4664	☼ 26,31,33,97
					29805	F96T12/CW/SS/CVP	10	12000	4200	60	5300	4664	☼ 26,31,33,97
					29816	F96T12/CW/SS/UPC	15	12000	4200	60	5300	4664	☼ 26,31,33,97
					29555	F96T12/CW/SS/SL	15	12000	4200	60	5140	4420	☼ 26,31,33,96,97,98
					29505	F96T12/CW/SS/ECO	15	12000	4200	60	5300	4664	☼ 26,31,33,76,97
					29851	F96T12/D865/SS	15	12000	6500	80	5300	4770	☼ 26,31,33,97
					29828	F96T12/DX/SS	15	12000	6500	88	3860	3397	☼ 26,31,33,97
					29868	F96T12/DX/SS/ECO	15	12000	6500	88	3860	3397	☼ 26,31,33,76,97

### Slimline Standard Instant Start Lamps

Nominal Wattage	Bulb	Nominal Length (in)	MOL (in)	Base	Product Number	Ordering Abbreviation	Pkg Qty	Avg Rated Life @3hrs/start	CCT (K)	Approx Lumens		Symbols & Footnotes	
										Initial	Mean		
										@25°C/77°F			
21	T12	24	22	Single Pin	22403	F24T12/CW	30	7500	4200	60	1150	1000	☼ 31,33,48
25	T6	42	40	Single Pin	24270	F42T6/WW	24	7500	3032	52	1825	1606	☼ 31,33,48
					24269	F42T6/D35	24	7500	3500	70	1830	1684	☼ 31,33,48
					24266	F42T6/CW	24	7500	4200	60	1750	1540	☼ 31,33,48
30	T12	36	34	Single Pin	23618	F36T12/CW	30	7500	4200	60	1970	1734	☼ 31,33,48
38	T6	64	62	Single Pin	26470	F64T6/WW	24	7500	3000	52	2900	2552	☼ 31,33,48
					26466	F64T6/CW	24	7500	4200	60	2800	2464	☼ 31,33,48
	T8	72	70	Single Pin	27270	F72T8/WW	24	7500	3000	52	3100	2728	☼ 31,33,48
					27266	F72T8/CW	24	7500	4200	60	3050	2684	☼ 31,33,48
27200	F72T8/D	24	7500	6500	76	2600	2288	☼ 31,33,48					
39	T12	48	46	Single Pin	24832	F48T12/D35	30	9000	3500	70	3000	2760	☼ 31,33,48
					24827	F48T12/CW/ECO	30	9000	4200	60	2820	2482	☼ 31,33,48,76
					24830	F48T12/CW	30	9000	4200	60	2820	2482	☼ 31,33,48

# INSTANT START LAMPS

## Slimline Standard Instant Start Lamps

Nominal Wattage	Bulb	Nominal Length (in)	MOL (in)	Base	Product Number	Ordering Abbreviation	Pkg Qty	Avg Rated Life @3hrs/start	CCT (K)	CRI	Approx Lumens @25°C/77°F		Symbols & Footnotes
											Initial	Mean	
39	T12	48	46	Single Pin	24834	<b>F48T12/D</b>	30	9000	6500	76	2450	2156	31,33,48
					24836	<b>F48T12D/ECO</b>	30	9000	6500	76	2450	2156	31,33,48,76
50	T12	60	58	Single Pin	26018	<b>F60T12/D35</b>	30	12000	3500	70	3850	3542	31,33,48,97
					26001	<b>F60T12/CW</b>	30	12000	4200	60	3700	3256	31,33,48,97
					26002	<b>F60T12/D</b>	30	12000	6500	76	3000	2640	31,33,48,97
51	T8	96	94	Single Pin	29666	<b>F96T8/CW</b>	24	7500	4200	60	4000	3520	31,33,48
					29650	<b>F96T8/D</b>	24	7500	6500	76	3550	3124	31,33,48
52	T12	64	62	Single Pin	26403	<b>F64T12/CW</b>	30	12000	4200	60	3900	3432	31,33,48,97
					26404	<b>F64T12/D</b>	30	12000	6500	76	3300	2904	31,33,48,97
55	T12	72	70	Single Pin	27255	<b>F72T12/D830</b>	15	12000	3000	80	4800	4512	31,33,48,97
					27250	<b>F72T12/D35</b>	15	12000	3500	70	4700	4324	31,33,48,97
					27243	<b>F72T12/D41</b>	15	12000	4100	70	4700	4324	31,33,48,97
					27256	<b>F72T12/CW</b>	15	12000	4200	60	4500	3960	31,33,48,97
					27259	<b>F72T12/D</b>	15	12000	6500	76	3800	3432	31,33,48,97
70	T12	84	82	Single Pin	28417	<b>F84T12/CW</b>	15	12000	4200	60	5300	4664	31,33,48,97
75	T12	96	94	Single Pin	29796	<b>F96T12/D30/ECO</b>	15	12000	3000	70	6420	5906	31,33,48,76,97
					29827	<b>F96T12/D830</b>	15	12000	3000	80	6550	6157	31,33,48,97
					29856	<b>F96T12/D830/ECO</b>	15	12000	3000	80	6550	6157	31,33,48,76,97
					29685	<b>F96T12/D35</b>	15	12000	3500	70	6420	5906	31,33,48,97
					29686	<b>F96T12/D35/ECO</b>	15	12000	3500	70	6420	5906	31,33,48,76,97
					29843	<b>F96T12/D835</b>	15	12000	3500	80	6550	6157	31,33,48,97
					29838	<b>F96T12/D835/ECO</b>	15	12000	3500	80	6550	6157	31,33,48,76,97
					29797	<b>F96T12/D41/CVP</b>	10	12000	4100	70	6420	5906	31,33,48,97
					29478	<b>F96T12/CWX</b>	15	12000	4100	87	4400	3872	31,33,48,97
					29858	<b>F96T12/CWX/CVP</b>	10	12000	4100	87	4400	3872	31,33,48,97
					29489	<b>F96T12/CWX/UPC</b>	15	12000	4100	87	4400	3872	31,33,48,97
					29852	<b>F96T12/D41/UPC</b>	15	12000	4100	70	6420	5906	31,33,48,97
					29798	<b>F96T12/D41/ECO</b>	15	12000	4100	70	6420	5906	31,33,48,76,97
					29857	<b>F96T12/D841</b>	15	12000	4100	80	6550	6157	31,33,48,97
					29850	<b>F96T12/D841/ECO</b>	15	12000	4100	80	6550	6157	31,33,48,76,97
					29833	<b>F96T12/DSGN50</b>	15	12000	5000	90	4400	3872	31,33,48,97
					29849	<b>F96T12/D865</b>	15	12000	6500	80	6000	5520	31,33,48,97
29500	<b>F96T12/DX</b>	15	12000	6500	88	4360	3837	31,33,48,97					

FULL SPECTRUM

## PREHEAT LAMPS

### Miniature T5 Preheat Lamps (Starter Required)

Nominal Wattage	Bulb	Nominal Length (in)	MOL (in)	Base	Product Number	Ordering Abbreviation	Pkg Qty	Avg Rated Life @3hrs/start	CCT (K)	Approx Lumens		Symbols & Footnotes	
										Initial	Mean		
										@25°C/77°F			
4	T5	6	5.91	Mini Bipin	20416	F4T5/CW	24	6000	4200	60	135	117	31,33
					20415	F4T5CW/BL/1/6	6	6000	4200	60	135	117	31,33
6	T5	9	8.91	Mini Bipin	20617	F6T5/WW	24	7500	3000	52	275	239	31,33
					20619	F6T5CW/BL/1/6	6	7500	4200	60	270	235	31,33
					20616	F6T5/CW	24	7500	4200	60	270	235	31,33
8	T5	12	11.91	Mini Bipin	20817	F8T5/WW	24	7500	3000	52	400	348	31,33
					20819	F8T5/SW/BL/1/6	6	7500	3000	52	400	348	31,33
					20837	F8T5/CWX	24	7500	4100	87	270	235	CR31,33
					20816	F8T5/CW	24	7500	4200	60	390	339	31,33
					20834	F8T5CW/BL/1/6	6	7500	4200	60	390	339	31,33
					20820	F8T5/D	24	7500	6500	76	350	305	CR31,33
13	T5	21	20.91	Mini Bipin	21317	F13T5/WW	24	7500	3000	52	880	766	31,33
					21316	F13T5/CW	24	7500	4200	60	860	748	31,33
					21315	F13T5CW/BL/1/6	6	7500	4200	60	860	748	31,33

### Standard T8 and T12 Preheat Lamps (Starter Required)

Nominal Wattage	Bulb	Nominal Length (in)	MOL (in)	Base	Product Number	Ordering Abbreviation	Pkg Qty	Avg Rated Life @3hrs/start	CCT (K)	Approx Lumens		Symbols & Footnotes	
										Initial	Mean		
										@25°C/77°F			
13	T8	12	11.71	Med Bipin	21766	F13T8/CW	24	7500	4200	60	530	461	31,33
14	T8	15	14.78	Med Bipin	21486	F14T8/CW	24	7500	4200	60	685	644	31,33
					21488	F14T8/D	24	7500	6500	76	575	561	CR31,33
	T12	15	14.78	Med Bipin	21435	F14T12/WW	30	9000	3000	52	660	574	31,33
	21451				F14T12/DSW/RP	6	9000	3000	70	720	648	CR31,33	
	21536				F14T12/DCW/1/6/RP	6	9000	4100	70	720	648	31,33	
	21409				F14T12/CW	30	9000	4200	60	650	566	31,33	
	21410				F14T12/CW/6/RP	6	9000	4200	60	650	566	31,33	
21411	F14T12/D	30	9000	6500	76	590	513	CR31,33					
15	T8	18	17.78	Med Bipin	21656	F15T8/DSW/RP	6	7500	3000	70	900	810	CR31,33
					21610	F15T8/D830	24	7500	3000	82	920	846	CR31,33
					21701	F15T8/WW	24	7500	3000	52	845	735	31,33
					21765	F15T8/SW/RP	6	7500	3000	52	845	735	31,33
					21609	F15T8/D35	24	7500	3500	70	940	846	CR31,33
					21682	F15T8/N	24	7500	3600	86	560	487	CR31,33
					21603	F15T8/DCW/RP	6	7500	4100	70	900	810	CR31,33
					21616	F15T8/CW	24	7500	4200	60	825	718	31,33
					21619	F15T8/CW/6PK	6	7500	4200	60	825	718	31,33
					21642	F15T8/DSGN50	24	7500	5000	90	600	539	CR31,33
					21600	F15T8/D	24	7500	6500	76	700	653	CR31,33
					T12	18	17.78	Med Bipin	21542	F15T12/WW	30	9000	3000
	21551	F15T12/DSW/RP	6	9000	3000				70	770	693	CR31,33	
					21532	F15T12/CW	30	9000	4200	60	750	653	31,33

## PREHEAT LAMPS

## Standard T8 and T12 Preheat Lamps (Starter Required)

Nominal Wattage	Bulb	Nominal Length (in)	MOL (in)	Base	Product Number	Ordering Abbreviation	Pkg Qty	Avg Rated Life @3hrs/start	CCT (K)	CRI	Approx Lumens		Symbols & Footnotes
											Initial @25°C/77°F	Mean @25°C/77°F	
15	T12	18	17.78	Med Bipin	21513	F15T12/CW/6PK	6	9000	4200	60	750	653	31,33
					21535	F15T12/DCW/RP	6	9000	4100	76	770	693	31,33
					21534	F15T12/D	30	9000	6500	76	660	574	31,33
18	T8	24	23.78	Med Bipin	23014	F18T8CW/K24	24	7500	4200	60	1190	1035	31,33
					23012	F18T8CW/K24/1/12/UPC	12	7500	4200	60	1190	1035	31,33
					23027	F18T8CW/K26	24	7500	4200	60	1280	1079	31,33
		26	25.78	Med Bipin	23025	F18T8/CW/K26PLT	3168	7500	4200	60	1280	1079	31,33
					21728	F18T8/D/K26	24	7500	6500	76	1100	957	31,33
		28	27.78	Med Bipin	23028	F18T8CW/K28	24	7500	4200	60	1360	1131	31,33
		30	29.78	Med Bipin	23030	F18T8CW/K30	24	7500	4200	60	1400	1200	31,33
20	T12	24	23.78	Med Bipin	22131	F20T12/WW	30	9000	3000	52	1250	1088	31,33
					22134	F20T12/WW/RP	6	9000	3000	52	1250	1088	31,33
					22252	F20T12/DSW/RP	6	9000	3000	70	1300	1170	31,33
					22251	F20T12/D35	30	9000	3500	70	1300	1170	31,33
					22256	F20T12/DCW/RP	6	9000	4100	70	1300	1170	31,33
					22078	F20T12/CW	30	9000	4200	60	1200	1044	31,33
					22074	F20T12/CW/CVP/10	10	9000	4200	60	1200	1044	31,33
					22015	F20T12/CW/RP	6	9000	4200	60	1200	1044	31,33
					22073	F20T12/CW/UPC	30	9000	4200	60	1200	1044	31,33
					22119	F20T12/DSGN50	30	9000	5000	90	880	766	31,33
					22083	F20T12/D	30	9000	6500	76	1075	935	31,33
					25	T12	28	27.78	Med Bipin	22527	F25T12/CW/28	30	7500
22333	F25T12/WW/30	30	7500	3000						52	1750	1523	31,33
30	29.78	Med Bipin	22528	F25T12/CW/30			30	7500	4200	60	1730	1505	31,33
			22529	F25T12/CW/33			30	7500	4200	60	1850	1610	31,33
30	T8	36	35.78	Med Bipin	23701	F30T8/WW	24	7500	3000	52	2150	1871	31,33
					23140	F30T8/DWW/RP	6	7500	3000	70	2360	2124	31,33
					23182	F30T8/N	24	7500	3600	86	1500	1305	31,33
					23127	F30T8/CWX	24	7500	4100	87	1550	1349	31,33
					23116	F30T8/CW	24	7500	4200	60	2180	1897	31,33
					23121	F30T8CW 6/CS	6	7500	4200	60	2180	1897	31,33
					23100	F30T8/D	24	7500	6500	76	1850	1653	31,33
40	T12	48	47.2	Med Bipin	24409	L40W/30-1	25		3000	50		31	
58	T8	60	59.6	Med Bipin	24729	L58W/840	25	20000	4000	80	5200	4785	31,33,48
70	T8	70	70	Med Bipin	20804	L70W / 21 - 840	25	15000	4000	80	6550	6026	31,33,48





## SPECIALTY FLUORESCENT LAMPS

## SAFELINE® Shatter Resistant Coated Lamps

Nominal Wattage	Bulb	Nominal Length (in)	MOL (in)	Base	Product Number	Ordering Abbreviation	Pkg Qty	Avg Rated Life @3hrs/start	CCT (K)	CRI	Approx Lumens		Symbols & Footnotes
											Initial @25°C/77°F	Mean @25°C/77°F	
32	T8	48	47.78	Med Bipin	21678	F032/735/SL	30	25000	3500	78	2716	2444	31,33,52,96, 98, 119

## SPECIALTY FLUORESCENT LAMPS






### SAFELINE® Shatter Resistant Coated Lamps

Nominal Wattage	Bulb	Nominal Length (in)	MOL (in)	Base	Product Number	Ordering Abbreviation	Pkg Qty	Avg Rated Life @3hrs/start	CCT (K)	CRI	Approx Lumens		Symbols & Footnotes
											Initial	Mean	
32	T8	48	47.78	Med Bipin	21547	F032/741ECO/SL	30	25000	4100	78	2716	2444	☉  31,33,52,76,96,98,119
34	T12	48	47.78	Med Bipin	24396	F34CW/SS/SL <i>formerly F40CW/SS/SL</i>	30	20000	4200	60	2570	2313	☉ 2,24,30,31,33,96,98
54	T5	48	45.8	Mini Bipin	21020	FP54/835/HO/ECO/SL	40	25000	3500	85	4316	4014	 31,33,38,48,74,76,96,98
					21021	FP54/841/HO/ECO/SL	40	25000	4100	85	4316	4014	 31,33,48,74,76,96,98
					21022	FP54/850/HO/ECO/SL	40	25000	5000	85	4243	3946	 31,33,48,74,76,96,98
60	T12	96	94	Single Pin	29555	F96T12/CW/SS/SL	15	12000	4200	60	5140	4420	☉ 26,31,33,96,97,98






### Weather-Shielded Jacketed Lamps

Nominal Wattage	Bulb	Nominal Length (in)	MOL (in)	Base	Product Number	Ordering Abbreviation	Pkg Qty	Avg Rated Life @3hrs/start	CCT (K)	CRI	Approx Lumens		Symbols & Footnotes
											Initial	Mean	
70	T14.5	60	57.91	Recessed DC	21124	FJ60T12/CW/HO	8	12000	4200	60	5300	4293	31,33,48,97,116
110	T12	96	93.1	Recessed DC	21356	FJ96T12/CW/HO	8	12000	4200	60	8500	6885	31,33,48,97,116
115	T12	48	45.91	Recessed DC	21330	FJ48T12/CW/VHO/LT	12	10000	4200	60	6750	4725	31,33,48,88,108,116
165	T12	72	69.91	Recessed DC	21335	FJ72T12/CW/VHO/LT	8	10000	4200	60	10700	7490	31,33,48,88,108,116
215	T12	96	93.1	Recessed DC	21340	FJ96T12/CW/VHO/LT	8	10000	4200	60	15300	10710	31,33,48,88,108,116

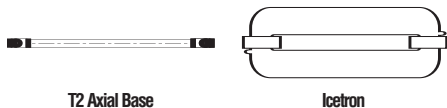
### GRO-LUX® Lamps for Plant Growth & Aquariums

Nominal Wattage	Bulb	Nominal Length (in)	MOL (in)	Base	Product Number	Ordering Abbreviation	Pkg Qty	Avg Rated Life @3hrs/start	CCT (K)	CRI	Approx Lumens		Symbols & Footnotes
											Initial	Mean	
15	T8	18	17.78	Med Bipin	21657	F15T8/GRO/AQ/RP	6	7500		66	325		 31,33,48,57
20	T12	24	23.78	Med Bipin	22013	F20T12/GRO/AQ/WS/RP	6	9000	3400	89	750		 31,33,48,57
					22029	F20T12/GRO/AQ/RP	6	9000		480	 31,33,48,57		
40	T12	48	47.78	Med Bipin	24671	F40/GRO/AQ/WS/RP	6	20000	3400	89	1700		 2,30,31,33,48,56,64
					24660	F40/GRO/AQ/RP	6	20000		1200	 2,30,31,33,48,56,64		

### Miniature T2 Lamps

Nominal Wattage	Bulb	Nominal Length (in)	MOL (in)	Base	Product Number	Ordering Abbreviation	Pkg Qty	Avg Rated Life @3hrs/start	CCT (K)	CRI	Approx Lumens		Symbols & Footnotes
											Initial	Mean	
6	T2	8.6	8.6	Axial	26204	FM6/830	20	10000	3000	80	330	297	 3,31,33,38,48,74,118
					26213	FM6/841	20	10000	4100	80	330	297	 3,31,33,38,48,74,118
8	T2	12.6	12.6	Axial	26237	FM8/830	20	10000	3000	80	540	486	 3,31,33,38,48,74,118
					26232	FM8/841	20	10000	4100	80	540	486	 3,31,33,38,48,74,118
11	T2	16.6	16.6	Axial	26239	FM11/830	20	10000	3000	80	750	675	 3,31,33,38,48,74,118





T2 Axial Base

ICETRON

## SPECIALTY FLUORESCENT LAMPS

### Miniature T2 Lamps

Nominal Wattage	Bulb	Nominal Length (in)	MOL (in)	Base	Product Number	Ordering Abbreviation	Pkg Qty	Avg Rated Life @3hrs/start	CCT (K)	CRI	Approx Lumens @25°C/77°F		Symbols & Footnotes
											Initial	Mean	
11	T2	16.6	16.6	Axial	26235	FM11/835	20	10000	3000	80	750	675	6,31,33,38,48,74,118
					26231	FM11/841	20	10000	4100	80	750	675	6,31,33,38,48,74,118
13	T2	20.6	20.6	Axial	26253	FM13/830	20	10000	3000	80	930	837	6,31,33,38,48,74,118
					26291	FM13/835	20	10000	3500	80	930	837	6,31,33,38,48,74,118
					26230	FM13/841	20	10000	4100	80	930	837	6,31,33,38,48,74,118

### ICETRON® Inductively Coupled, Electrodeless Lamps

The ICETRON® System is a unique adaptation of the inductively coupled electrodeless technology delivering high luminous efficacy and extremely long system life of 100,000 hours in a shape uniquely suited for a variety of lighting applications. The ICETRON lamps and ballasts are designed as dedicated systems and are not interchangeable with other lamps and ballasts. Please consult OSRAM SYLVANIA for fixture design and application assistance. An ICETRON Design Guide is available on request.

Nominal Wattage	Bulb	Nominal Length (in)	MOL (in)	Base	Product Number	Ordering Abbreviation	Pkg Qty	Avg Rated Life @3hrs/start	CCT (K)	CRI	Approx Lumens @25°C/77°F		Symbols & Footnotes
											Initial	Mean	
70	T17	12.32	Mount Brkts	26087	ICE70/835/2P/ECO	1	100000	3500	80	6200	4605	6,31,33,38,51,76,78,100,101	
				26081	ICE70/835	1	100000	3500	80	6200	4605	6,31,33,38,51,78,100,101	
				26088	ICE70/841/2P/ECO	1	100000	4100	80	6200	4605	6,31,33,38,51,76,78,100,101	
				26082	ICE70/841	1	100000	4100	80	6200	4605	6,31,33,38,51,78,100,101	
				26089	ICE70/850/2P/ECO	1	100000	5000	80	5950	4420	6,31,33,38,51,76,78,100,101	
100	T17	12.32	Mount Brkts	26102	ICE100/835/2P/ECO	1	100000	3500	80	8000	5945	6,31,33,38,51,76,78,100,101	
				26103	ICE100/841/2P/ECO	1	100000	4100	80	8000	5945	6,31,33,38,51,76,78,100,101	
				26105	ICE100/850/2P/ECO	1	100000	5000	80	7600	5645	6,31,33,38,51,76,78,100,101	
				26106	ICE100/BL/2P	1						6,31,33,38,51,78,100,101,109	
150	T17	16.28	Mount Brkts	26152	ICE150/835/2P/ECO	1	100000	3500	80	12000	8915	6,31,33,38,51,76,78,100,101	
				26153	ICE150/841/2P/ECO	1	100000	4100	80	12000	8915	6,31,33,38,51,76,78,100,101	
				26155	ICE150/850/2P/ECO	1	100000	5000	80	11650	8655	6,31,33,38,51,76,78,100,101	
				26154	ICE150/BL/2P	1						31,33,38,51,78,100,101,109	

### ICETRON® Inductively Coupled Electrodeless Reflector Lamp

Nominal Wattage	Bulb	Nominal Length (in)	MOL (in)	Base	Product Number	Ordering Abbreviation	Pkg Qty	Avg Rated Life @3hrs/start	CCT (K)	CRI	Approx Lumens @25°C/77°F		Symbols & Footnotes
											Initial	Mean	
100	T17	12.32	Mount Brkts	26161	ICE100/841/R/2P/ECO	1	100000	4100	80	7300	5014	6,31,33,38,51,76,78,100,101	

FULL FLUORESCENT





T12 Med Bipin

T8 Med Bipin

T12 RDC

T5 Mini Bipin

CFL 2Pin

CFL 4 Pin

## SPECIALTY FLUORESCENT LAMPS

### Diazo (SDB)

Nominal Wattage	Bulb	Nominal Length (in)	MOL (in)	Base	Product Number	Ordering Abbreviation	Pkg Qty	Avg Rated Life @3hrs/start	CCT (K)	Approx Lumens @25°C/77°F		Symbols & Footnotes
										Initial	Mean	
65	T12	48	47.78	Med Bipin	24465	F40T12/SDB/65W	30	1000				115

### Blacklight, Preheat Lamps (Starter Required)

These lamps are not intended and should not be used for diagnostic, therapeutic or cosmetic purposes.

Nominal Wattage	Bulb	Nominal Length (in)	MOL (in)	Base	Product Number	Ordering Abbreviation	Pkg Qty	Avg Rated Life @3hrs/start	CCT (K)	Approx Lumens @25°C/77°F		Symbols & Footnotes
										Initial	Mean	
15	T8	18	17.78	Med Bipin	21623	F15T8/350BL	24	7500				31,33,59,60,105
20	T12	24	23.78	Med Bipin	22113	F20T12/350BL	24	9000				31,33,59,60,105
22	T12	15	14.78	Med Bipin	21445	F15T12/350BL/500/PH	30					31,33,59,60,111
25	T8	18	17.78	Med Bipin	21703	F25T8/350BL/18in	24	7500				31,33,59,60,107
30	T8	36	35.78	Med Bipin	23113	F30T8/350BL	24	7500				31,33,59,60,109
32	T12	18	17.78	Med Bipin	21525	F18T12/350BL/700/PH	30					31,33,59,60,112

### Blacklight, Rapid Start Lamps (No Starter Required)

Nominal Wattage	Bulb	Nominal Length (in)	MOL (in)	Base	Product Number	Ordering Abbreviation	Pkg Qty	Avg Rated Life @3hrs/start	CCT (K)	Approx Lumens @25°C/77°F		Symbols & Footnotes
										Initial	Mean	
40	T12	48	47.78	Med Bipin	24922	F40/350BL	30	20000				2,30,31,33,56,60,64,110
115	T12	48	45.91	Recessed DC	25251	FR48T12/350BL/VHO/180	30	10000				31,33,60,90,113

### Blacklight Blue, Preheat Lamps (Starter Required)

Nominal Wattage	Bulb	Nominal Length (in)	MOL (in)	Base	Product Number	Ordering Abbreviation	Pkg Qty	Avg Rated Life @3hrs/start	CCT (K)	Approx Lumens @25°C/77°F		Symbols & Footnotes
										Initial	Mean	
4	T5	6	5.91	Mini Bipin	20425	F4T5/BLB	24	6000				31,33,59,60,99
8	T5	12	11.91	Mini Bipin	20825	F8T5/BLB	24	7500				31,33,59,60,99
15	T8	18	17.78	Med Bipin	21625	F15T8/BLB	6	7500				31,33,59,60,99

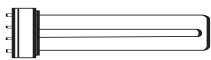
### Blacklight Blue, Rapid Start Lamps (No Starter Required)

Nominal Wattage	Bulb	Nominal Length (in)	MOL (in)	Base	Product Number	Ordering Abbreviation	Pkg Qty	Avg Rated Life @3hrs/start	CCT (K)	Approx Lumens @25°C/77°F		Symbols & Footnotes
										Initial	Mean	
40	T12	48	47.78	Med Bipin	24026	F40/BLB/RP	6	20000				2,30,31,33,56,60,64,102

## GERMICIDAL LAMPS

### Germicidal Compact Fluorescent Lamps

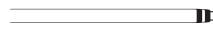
Nominal Wattage	Bulb	Nominal Length (in)	MOL (in)	Base	Product Number	Ordering Abbreviation	Pkg Qty	Avg Rated Life @3hrs/start	CCT (K)	Approx Lumens @25°C/77°F		Symbols & Footnotes
										Initial	Mean	
7	T5			G23	23372	GCF7DS/G23/SE/OF	10	8000				31,33,45,47,50,82
9	T5			G23	23373	GCF9DS/G23/SE/OF	10	8000				31,33,45,47,50,82
11	T4			G23	23377	GCF11DS/G23/SE/OF	10	8000				31,33,45,47,50,82
18	T5			2G11	23378	GFT18DL/2G11/SE/OF	10	8000				31,33,36,48,74,82
24	T5			2G11	23379	GFT24DL/2G11/SE/OF	10	8000				31,33,36,48,74,82



CFL 4 Pin



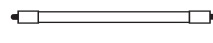
T5 Mini Bipin



T8 Med Bipin



T5 Single End, T6 Single End



T5 Single Pin

## GERMICIDAL LAMPS

### Germicidal Compact Fluorescent Lamps

Nominal Wattage	Bulb	Nominal Length (in)	MOL (in)	Base	Product Number	Ordering Abbreviation	Pkg Qty	Avg Rated Life @3hrs/start	CCT (K)	CRI	Approx Lumens @25°C/77°F		Symbols & Footnotes
											Initial	Mean	
36	T6			2G11	23380	<b>GFT36DL/2G11/SE/OF</b>	10	8000					31,33,36,48,74,82

### Germicidal, Preheat Lamps (Starter Required)

Nominal Wattage	Bulb	Nominal Length (in)	MOL (in)	Base	Product Number	Ordering Abbreviation	Pkg Qty	Avg Rated Life @3hrs/start	CCT (K)	CRI	Approx Lumens @25°C/77°F		Symbols & Footnotes
											Initial	Mean	
6	T5			Mini Bipin	23375	<b>G6T5/OF</b>	10	6000					31,33,45,57,82
8	T5			Mini Bipin	20811	<b>G8T5/OF</b>	24	6000					31,33,45,59,82
10	T8			Med Bipin	23374	<b>G10T8/OF</b>	10	6000					31,33,59,82
15	T8			Med Bipin	21612	<b>G15T8/OF</b>	24	7500					31,33,45,59,82
16	T5			4 PIN	23384	<b>G10T5/4P/SE/OF</b>	10	9000					31,33,59,82
				Mini Bipin	23387	<b>G20T5/G5/OF</b>	10	9000					31,33,59,82
25	T5			Med Bipin	23376	<b>G25T8/OF</b>	10	8000					31,33,59,82
30	T8			Med Bipin	23112	<b>G30T8/OF</b>	24	7500					31,33,45,59,82
39	T5			4 PIN	23381	<b>G36T5/4P/SE/OF</b>	10	9000					31,33,57,82
				Mini Bipin	23382	<b>G36T5/G5/OF</b>	10	9000					31,33,59,82
55	T5			Med Bipin	23388	<b>G55T8/OF</b>	10	8000					31,33,59,82
65	T5			4 PIN	23386	<b>G64T5/4P/SE/OF</b>	10	9000					31,33,82

### Germicidal Instant Start Lamps

Nominal Wattage	Bulb	Nominal Length (in)	MOL (in)	Base	Product Number	Ordering Abbreviation	Pkg Qty	Avg Rated Life @3hrs/start	CCT (K)	CRI	Approx Lumens @25°C/77°F		Symbols & Footnotes
											Initial	Mean	
14	T5			Single Pin	23383	<b>G14T5/SP/OF</b>	10	8000					31,33,82
16	T5			Single Pin	23385	<b>G10T5/SP/OF</b>	10	9000					31,33,82
39	T5			Single Pin	23443	<b>G36T5/SP/OF</b>	10	9000					31,33,82
65	T5			Single Pin	23442	<b>G64T5/SP/OF</b>	10	9000					31,33,82

### Germicidal Amalgam Lamps

Nominal Wattage	Bulb	Nominal Length (in)	MOL (in)	Base	Product Number	Ordering Abbreviation	Pkg Qty	Avg Rated Life @3hrs/start	CCT (K)	CRI	Approx Lumens @25°C/77°F		Symbols & Footnotes
											Initial	Mean	
120	T6			4 PIN	23364	<b>G120T6/4P/SE/OF</b>	5	8000					31,33,82
190	T6			4 PIN	23365	<b>G190T6/4P/SE/OF</b>	5	8000					31,33,82

## FLUORESCENT PREHEAT LAMP STARTERS

### GLOSTAT Starters

Product Number	Ordering Abbreviation	Pkg Qty	Description	Symbols & Footnotes
42812	<b>FS-2</b>	100	Fluorescent starter for use with F14, F15 and F20 preheat fluorescent lamps. UL, CSA	
42901	<b>FS-2/BL/2PK</b>	12	Fluorescent starter for use with F14, F15 and F20 preheat fluorescent lamps, bulk pack with 2 starters. UL, CSA	
44812	<b>FS-4 100/CS</b>	100	Fluorescent starter for use with F13, F30 and F40 preheat lamps. UL, CSA	

## FLUORESCENT PREHEAT LAMP STARTERS








### GLOSTAT Starters

Product Number	Ordering Abbreviation	Pkg Qty	Description	Symbols & Footnotes
44902	<b>FS-4/BL/2PK</b>	12	Fluorescent starter for use with F13, F30 and F40 preheat lamps, blister pack with 2 starters. UL, CSA	
45812	<b>FS-5</b>	100	Fluorescent starter for use with F4, F6 and F8 preheat fluorescent lamps. UL, CSA	
45813	<b>FS-5/BL/2PK</b>	12	Fluorescent starter for use with F4, F6 and F8 preheat fluorescent lamps, blister pack with 2 starters. UL, CSA	
43813	<b>FS-12/BL/2PK</b>	12	Fluorescent starter for use with FC12 Circline lamps when operated by preheat ballasts and F22T8 preheat lamps, blister pack with 2 starters. UL, CSA	
42512	<b>FS-25</b>	100	Fluorescent starter for use with FC6 (20W) & FC8 (22W) Circline lamps when operated by preheat ballasts; F25 and F18T8 preheat lamps. UL, CSA	
42513	<b>FS-25/BL/2PK</b>	12	Fluorescent starter for use with FC6 (20W) & FC8 (22W) Circline lamps when operated by preheat ballasts; F25 and F18T8 preheat lamps, blister pack with 2 starters. UL, CSA	

### COP Starters With Cutout And Manual Reset

Product Number	Ordering Abbreviation	Pkg Qty	Description	Symbols & Footnotes
42302	<b>FS-20 (COP-20)</b>	100	Fluorescent starter with cutout and manual reset for use with F15 & F20 preheat lamps. UL, CSA	
44102	<b>FS-40/400 (COP-40/400)</b>	100	Fluorescent starter with cutout and manual reset for use with F40 preheat lamps. UL, CSA	

## SYMBOLS & FOOTNOTES FOR FLUORESCENT LAMPS

Symbol	Description
	New item introduced within the past year.
	Item will be discontinued when inventory is depleted.
	Rating given for 200mA operation.
	This fluorescent lamp generates radiant energy which is most beneficial for plant propagation and enhances vegetative and reproductive growth of many plants for home and commercial use.
	This lamp or ballast meets minimum Federal efficiency standards.
	This ECOLOGIC® lamp was designed to pass the Federal TCLP criteria for classification as non-hazardous waste in most states. Disposal regulations may vary; check local and state regulations.
	This lamp is a High Color Rendering Lamp

Footnote	Description
1	May be operated at 100 watts (1000MA) same as F84T12/HO.
2	Average life rating at 12 hours operation per start is 28,800 hours.
3	Due to their small diameter, T2 miniature fluorescent lamps operate at higher surface temperatures than other fluorescent lamps. To avoid possible burns, do not touch the lamp during operation and allow sufficient cooling time before removing the lamp from the fixture. The typical bulb wall temperature during operation is 120 degrees at the ends. The maximum allowable bulb wall temperature is 150 degrees C. To avoid electrical shock, turn electrical power off before removing or installing the lamp.
4	The 30,000 hour average rated of the OCTRON (R) XPS CURVALUME (R) lamp is based on operation at 3 hours per start by a dedicated QUICKTRONIC(R) PSX ballast. If operated by other ballasts for T8 OCTRON lamps, life will be the same as that of the XP version of the lamp: typically 24,000 hours for rapid or programmed rapid start operation and 18,000 hours for instant start operation at 3 hours per start.
5	The lamp lumen maintenance factor used to determine the mean lumen value was 95%. This is the lamp lumen maintenance factor at 8,000 hours, 40% of 20,000 hours. It was used to allow comparison to standard OCTRON(R) lamps with an average rated life of 20,000 hours. The lamp lumen maintenance factor at 40% of 24,000 hours, 9600 hours, would be 94%; the lamp lumen maintenance factor at 40% of 30,000 hours, 12000 hours, would be 93%.
6	The /2P version of the ICETRON lamp is supplied with a 24 inch lead wire terminated by a 2-Pin connector rather than the old 12 inch lead, 3-Pin connector design. The /2P versions are powered by QT1X100 ICE/UNV-T or QT1X150 ICE/UNV-T ballasts.
7	Recommended to be used on any F96 T8 Instant Start circuit. It is not recommended to be used: (1) at lamp ambient temperatures below 60 degrees F or in drafty locations, (2) on low power factor ballast, or (3) inverter operated emergency lighting systems unless any of the above equipment is specifically listed for use with the OCTRON F096 SUPERSAVER 55 watt T8 lamp. Any of the above situations could result in lamp starting and stabilization problems.
8	Current ballast design incorporates a modular 2-Pin connector plugin from the lamp. An adapter, NAED code 26240, is available to connect 3-Pin lamp types to current (2-Pin) design ballasts.
9	This lamp may also be operated by the OSRAM SYLVANIA QUICKTRONIC(R) PSN ballast (.88 BF), or the QUICKTRONIC PSX ballast (.71 BF).
10	The lumen maintenance factor used to determine the mean lumens value was 92%, measured at 40% of the average rated life, 15,000 hours. The lumen maintenance factor at 4,000-4,800 hours (for comparison to F96T12 HO and F96T12 Slimline instant start lamps) is 93%.
11	Minimum starting temperature for DULUX EL lamps is 0 degrees F
12	For operation in fixtures designed only for 24 ", 30 watt, T-12 Fluorescent lamps.
13	Life rating is based on rapid start operation. Life rating on instant start operation is 15,000 hrs.
14	Caution: Although DURA-ONE lamps can be used with occupancy sensors that have a fluorescent volt-amp rating, DURA-ONE lamps cannot be used on any other dimming circuits, emergency exit fixtures or lights, electronic timers, photocells, lighted switches or any other switches that do not meet UL20 Sec. 7.6.15. In outdoor applications, use only in enclosed fixtures to avoid exposure to weather. Use only on 120V, 60 Hz circuits. Never disassemble or modify lamp. Install or remove unit from fixture by grasping plastic base. Best performance achieved when operated at 77°F (25°C). Operating temperature range of DURA-ONE lamps is -20°F/-29°C to 122°F/50°C.
15	Service life (that amount of time where light output remains greater than or equal to 80% of initial lumens) is 16,000 hours for FP28/RED, FP28/GREEN, FP54/RED/HO and FP54/GREEN/HO and 10,000 hours for FP28/BLUE and FP54/BLUE/HO.
16	The life of this lamp, operated on instant start electronic ballasts is 24,000 hours based on the industry standard life test standard of 3 hours per start.
17	Recommended to be used on any F32 T8 instant start circuit. It is not recommended to be used: (1) with rapid Start circuits unless the open circuit voltage is greater than 570V, (2) at lamp ambient temperatures below 70°F or in drafty locations, (3) in air handling fixtures, (4) on dimming ballasts, (5) on inverter operated emergency lighting systems unless any of the above equipment is specifically listed for 25W lamps, or (6) below 60°F starting temperature. Any of the above situations could result in lamp starting and stabilization problems or system compatibility issues.

## SYMBOLS & FOOTNOTES FOR FLUORESCENT LAMPS

Footnote	Description
18	IF AN OPERATING LAMP IS EXPOSED TO TEMPERATURES BELOW 70°F OR MOVING AIR (WIND, DRAFTS OR AIR FLOW FROM AN AIR CONDITIONING OR VENTILATION SYSTEM) STRIATION, A RHYTHMIC PULSING PATTERN OF LIGHT RUNNING THE LENGTH OF THE TUBE AND/OR A REDUCTION IN LIGHT OUTPUT MAY OCCUR. While visually disconcerting, neither behavior is damaging to lamp life and removing the cause (draft or temperature) will return the lamp to normal operation.
19	The 36,000 hour average rated life of the FO32/800XPS/ECO OCTRON(R) lamp is based on operation at 3 hours per start on a QUICKTRON-IC(R) programmed start ballast. If operated on other ballasts for T8 OCTRON lamps, lamp life will be 36,000 hours for programmed rapid start operation and 24,000 hours for instant start operation at 3 hours per start.
20	The 36,000 hour average rated life of the FO32/800XP/ECO, FO30/800XP/SS/ECO, FO28/800XP/SS/ECO and FO32/25W/800XP/SS/ECO OCTRON(R) lamps is based on operation at 3 hours per start on a QUICKTRONIC(R) programmed start ballast. If operated on other ballasts for T8 OCTRON lamps, lamp life will be 36,000 hours for programmed rapid start operation and 24,000 hours for instant start operation at 3 hours per start.
21	The life rating of FO32/800/ECO OCTRON® lamps operated on rapid start ballasts is 30,000 hours. The life rating of FO32/800/ECO OCTRON lamps operated on instant start ballasts is 24,000 hours.
22	Recommended only for use on 2-lamp, 30 watt rapid-start high power factor lead, indoor ballasts that meet ANSI standards. Not intended for use: (1) at lamp ambient temperatures below 60 degrees F or in drafty locations, (2) on low power factor ballasts, (3) reduced current/reduced light output ballasts, (4) dimming ballasts, or (5) on inverter operated emergency lighting systems unless any of the above equipment is specifically listed for use with 25 watt lamps.
23	If an operating lamp is exposed to drafts or the ambient temperature falls below 60 degrees F, striation (a rhythmic pulsing pattern of light running down the tube) and/or reduction in lamp brightness may occur. While visually disconcerting, neither behavior is damaging to the lamp and removing the cause (draft or temperature) will return the lamp to normal operation.
24	Recommended for use on one or two lamp 40 watt rapid start, high power factor, lead, indoor ballasts that meet ANSI standards. Not intended for use: (1) at lamp ambient temperatures below 60 degrees F or in drafty locations, (2) on low power factor ballasts, (3) reduced current/reduced light output ballasts, (4) dimming ballasts, or (5) on inverter operated emergency lighting systems unless any of the above equipment is specifically listed for use with 34 watt lamps.
25	Recommended for use on two lamp 40 watt rapid start, high power factor, lead indoor ballasts that meet ANSI standards. Not intended for use: (1) at lamp ambient temperatures below 60 degrees F or in drafty locations, (2) on low power factor ballasts, (3) reduced current/reduced light output ballasts, (4) dimming ballasts, (5) on inverter operated emergency lighting systems, or (6) on high frequency electronic ballasts. Use one Thrift/Mate with one F40/SS in each two lamp circuit.
26	Recommended for use on one or two lamp high power factor, lead, instant-start, indoor ballasts that meet ANSI standards. Not intended for use: (1) at lamp ambient temperatures below 60 degrees F or in drafty locations, (2) on low power factor ballasts, (3) reduced current/reduced light output ballasts, (4) dimming ballasts, or (5) on inverter operated emergency lighting systems unless any of the above equipment is specifically listed for use with 32 watt or 60 watt lamps.
27	Recommended for use on one or two lamp high power factor, lead, 8-foot lamp, high output, indoor ballasts that meet ANSI standards. Not intended for use: (1) at lamp ambient temperatures below 60 degrees F or in drafty locations, (2) on low power factor ballasts, (3) reduced current/reduced light output ballasts, (4) dimming ballasts, or (5) on inverter operated emergency lighting systems unless any of the above equipment is specifically listed for use with 95 watt lamps.
28	Recommended for use on 2-lamp high power factor, lead, 8-foot lamp, very high output, indoor ballasts that meet ANSI standards. Not intended for use: (1) at lamp ambient temperatures below 60 degrees F or in drafty locations, (2) on low power factor ballasts, (3) reduced current/reduced light output ballasts, (4) dimming ballasts, or (5) on inverter operated emergency lighting systems unless equipment is specifically listed for use with 195 watt lamps.
29	Recommended for use on two-lamp high power factor, lead-lag, Preheat, indoor ballasts that meet ANSI standards and installed in open type fixtures. Not intended for use: (1) at lamp ambient temperatures below 60 degrees F or in drafty locations (unstable operation or starting difficulties may be experienced below 60 degrees F or in strong drafts); (2) on low power factor ballasts, reduced current, reduced light output ballasts, dimming ballasts, or in inverter operated emergency lighting systems.
30	Average rated life is measured at 3 hours per start on 2-lamp, rapid start magnetic ballasts per IES recommended practice. Lamp life on single-lamp rapid start ballasts may be reduced.
31	Approximate initial lumens after 100 hours operation.
32	Recommended for use on one or two lamp 40 watt rapid start, high power factor, lead, indoor ballasts that meet ANSI standards. Not intended for use: (1) at lamp ambient temperatures below 60 degrees F or in drafty locations, (2) on low power factor ballasts, (3) reduced current/reduced light output ballasts, (4) dimming ballasts, or (5) on inverter operated emergency lighting systems unless any of the above equipment is specifically listed for use with 34 watt lamps. Not to be used on electronic ballasts nor with any other impedance modifying devices.
33	The life ratings of fluorescent lamps are based on 3 hr. burning cycles under specified conditions and with ballast meeting ANSI specifications. If burning cycle is increased, there will be a corresponding increase in the average hours life.
34	Average rated life is based on 3 hours per start operated on rapid start circuits. Average rated life is 7,500 hours on preheat circuits and 5,000 hours on instant start circuits.
35	The life rating of OCTRON and OCTRON Curvalume lamps operated on magnetic rapid start ballasts is 20,000 hours. The life rating of OCTRON and OCTRON Curvalume lamps operated on instant start electronic ballasts is 15,000 hours.

## SYMBOLS & FOOTNOTES FOR FLUORESCENT LAMPS

Footnote	Description
36	These lamps may also be operated on rapid start circuits. On rapid start circuits the 24 watt lamp operates at 27 watts and the 36 watt lamp operated at 39 watts. Rated lamp life is unchanged.
37	Lumen output rated on high frequency operation. 60 HZ operation would result in lower lumen output.
38	Lumen output and life rated on high frequency operation.
39	DULUX F lamps can typically be operated on DULUX L and PENTRON HO ballasts of the same/similar wattage. Check with the ballast manufacturer to verify lamp/ballast compatibility.
40	Rule of Thumb for Compact Fluorescent Lamps: Divide wattage of incandescent lamp by 4 to determine approximate wattage of compact fluorescent lamp that will provide similar light output.
41	Guarded OCTRON lamp has plastic tube guard, which filters 95% of the UV emissions and provides shatter protection.
42	Rating for OSRAM SYLVANIA Circline lamps are based on operation in Rapid Start circuits. They will also operate on preheat circuits.
43	Gold OCTRON lamp has plastic tube guard which filters wavelengths less than 525nm and provides shatter protection.
44	Life rating of OCTRON XP lamps operated on instant start electronic ballasts is 18,000 hours based on the industry standard life test cycle of 3 hours per start.
45	Germicidal lamps can be operated on corresponding wattage preheat ballasts.
46	Amalgam compact fluorescent lamps provide at least 90% light output from 40-140 degrees F. Non-amalgam compact fluorescent lamps provide at least 90% light output from 60-100 degrees F in the base up position, the temperature range is narrower for horizontal or base down.
47	Minimum starting temperature: CF5: -22 degrees F; CF7: -4 degrees F; CF9: 14 degrees F; CF13DS: 14 degrees F; CF13DD: -4 degrees F; CF18DD: 5 degrees F; CF18DT: -4 degrees F; CF26: 14 degrees F.
48	Minimum starting temperature is a function of the ballast; consult the ballast manufacturer.
49	Minimum starting temperature for DULUX EL lamps is 0° F, unless otherwise specified in product literature. .
50	2 pin CF lamps are not suitable for use in frequently cycled applications or with occupancy sensors. 2 pin CF lamps should never be installed in 4 pin sockets regardless if lamp will fit.
51	Color and CRI at amalgam tip temperature of 149 degrees F (65 degrees C) for ICETRON 70 and ICETRON 100 and at 158 degrees F (70 degrees C) amalgam tip temperature for ICETRON 150.
52	OCTRON lamps should be operated only with magnetic rapid start ballasts designed to operate 265 mA, T-8 lamps or high frequency (electronic) ballasts that are either instant start, or rapid start, or programmed rapid start specifically designed to operate T8 lamps. OCTRON lamps may be operated on instant start ballasts with ballast factors ranging from a minimum of 0.71 to a maximum of 1.20 at the nominal ballast input voltage. When OCTRON lamps are operated in the instant start mode, the two wires or two contacts of each socket should be connected to each other. They should then be connected to the appropriate ballast lead wire using National Electric Code techniques.
53	For operation on instant start circuits. Use only in fixtures equipped with Instant Start Ballasts.
54	Approximate length of OCTRON CURVALUME lamps is measured from base face to outside of glass bend.
55	For optimum performance OCTRON CURVALUME 1 5/8 inch leg spacing lamps in the 3000K, 3500K and 4100K color temperatures are now available only in the 82CRI version (800 series). These lamps are made to the same color standards and may be used in combination with other SYLVANIA OCTRON lamps to meet the needs of lighting installations where T8 lamps are used.
56	The "RS" designation has been eliminated to simplify the ordering abbreviation.
57	Preheat lamp, starter required.
58	Low temperature performance rated at 35 degrees F ambient.
59	Starter required.
60	These lamps are not intended and should not be used for diagnostic, therapeutic, or cosmetic purposes.
61	For use with 4,6 & 8 watt lamps.
62	For use with 13,30 & 40 watt lamps.
63	For use with 14,15 & 20 watt lamps.
64	40W Rapid Start Lamps may be used in starter operated fixtures designed for 40W preheat lamps. Life rating for preheat service is approximately 15,000 hours average.
65	For use with 22 watt Circline lamps, 25 watt Std. Lp., FC6 & F18T8.
66	For use with 32 watt Circline lamps, F22T8.
67	For use with 15 & 20 watt lamps.
68	For use with 20 watt lamps.
69	For use with 30 watt lamps.
70	For use with 40 watt lamps.
71	For use with 90 & 100 watt lamps.
72	For use with 90 & 100 watt lamps (4-Pin type).



## SYMBOLS & FOOTNOTES FOR FLUORESCENT LAMPS

Footnote	Description
73	For use with GL-1302 GRO-LUX fixture.
74	There is a NEMA supported, industry issue where T2, T4, and T5 fluorescent and compact fluorescent lamps operated on high frequency ballasts may experience an abnormal end-of-life phenomenon. This end-of-life phenomenon can result in one or both of the following: 1. Bulb wall cracking near the lamp base. 2. The lamp can overheat in the base area and possibly melt the base and socket. NEMA recommends that high frequency compact fluorescent ballasts have an end-of-life shutdown circuit which will safely and reliably shut down the system in the rare event of an abnormal end-of-life failure mode described above. The final requirements of this system are yet to be defined by ANSI. For additional information refer to NEMA papers on their WEBSITE at <a href="http://www.NEMA.org">www.NEMA.org</a> .
75	When base pins or R.D.C. bases are horizontal, window opening is centered downward or upward.
76	SYLVANIA ECOLOGIC fluorescent lamps are designed to pass the Federal Toxic Characteristic Leaching Procedure (TCLP) criteria for classification as non-hazardous waste in most states. TCLP test results are available upon request. Lamp disposal regulations may vary, check your local & state regulations. For more information, please visit <a href="http://www.lamprecycle.org">www.lamprecycle.org</a>
77	This 4-pin DULUX lamp has an internal end-of-life mechanism (EOL) that shuts down the lamp preventing abnormal end-of-life failure modes. This lamp was designed for use with high frequency ballasts that do not have their own end-of-life (lamp)sensing circuits, but it is also compatible with high frequency ballasts that have their own end-of-life (lamp) sensing circuits.
78	ICETRON diameter is the outside diameter of the ferrite coil. ICETRON MOL is the length from the outside edge of the mounting bracket on one end to the outside edge of the mounting bracket on the opposite end.
79	DULUX EIs meet CSA, FCC and UL requirements.
80	Caution: DULUX EL units cannot be used on dimming circuits, emergency exit fixtures or lights, electronic timers, photocells, lighted switches or any other switches that do not meet UL20 Sec. 7.6.15. In outdoor applications, use only in enclosed fixtures to avoid exposure to weather. Use only on 120V, 60 Hz circuits. Never disassemble or modify lamp. Install or remove unit from fixture by grasping plastic base. Best performance achieved when operated at 77degrees F (25 degrees C). 40 Watt lamp is designed for base down orientation only.
81	Caution: DULUX EL Circline units cannot be used on dimming circuits, emergency exit fixtures or lights, electronic timers, photocells or lighted switches. In outdoor applications, use only in enclosed fixtures to avoid exposure to weather. Use only on 120V, 60 Hz circuits.
82	WARNING: To prevent possible serious injury, eyes and skin should not be exposed to direct or reflected ultraviolet power emitted by this lamp. This lamp is in Risk Group 3 per ANSI/IESNA RP-27.3-96. Adequate protection should be provided by clothing, gloves, opaque materials, and ordinary window glass. Although this lamp will operate in standard fluorescent fixtures, it should not be used for general lighting applications.
83	Mean lumens at 8,000 hours (40% of 20,000 hours for comparison to standard OCTRON and F40 rapid start lamps). The lumen maintenance factor at 40% of average rated life (9,600 hours) is 94%.
84	The lumen maintenance factor used to determine the mean lumens value was 90%, measured at 40% of the average rated life, 15,000 hours. The lumen maintenance factor at 4,000-4,800 hours (for comparison to F96T12 HO and F96T12 Slimline instant start lamps) is 91%.
85	The lumen maintenance factor used to determine the mean lumen value was 95%. This is the lamp lumen maintenance factor at 6000 hours, 40% of 15,000 hours. It was used to allow comparison to standard OCTRON(R) lamps with an average rated life of 15000 hours. The lamp lumen maintenance factor at 40% of the 18,000 hour average rated life of this lamp, 7200 hours, would be 94%.
86	When base pins or R.D.C. bases are horizontal, window opening is centered to either side.
87	The lamp lumen maintenance factor used to determine the mean lumen value was 95%. This is the lamp lumen maintenance factor at 8,000 hours, 40% of 20,000 hours. It was used to allow comparison to standard OCTRON(R) lamps with an average rated life of 20,000 hours. The lamp lumen maintenance factor at 40% of the 24,000 hour average rated life of this lamp, 9600 hours, would be 94%.
88	Low temperature performance rated at 35 degrees F ambient.
89	Cool White lamp with 30 degree aperture (Power Beam).
90	Blacklight lamp with 180 degree reflector>
91	Labeled for cold temperature (below 60 degrees F) operation only per EPACT.
92	Under ideal conditions, an average rated life of 10,000 hours at 3 hours/start is possible.
93	The 30,000 hour average rated life of the F017/800XPS/ECO and F025/800XPS/ECO OCTRON(R) lamps is based on operation at 3 hours start on a QUICKTRONIC(R) Programmed Start ballast. If operated on other ballasts for T8 OCTRON lamps, lamp life will be 30,000 hours for rapid start operation, and 18,000 hours for instant start operation at 3 hours per start.
94	The lamp lumen maintenance factor used to determine the mean lumen value was 95%. This is the lamp lumen maintenance factor at 8000 hours, 40% of 20,000 hours. It was used for comparison to standard OCTRON(R) lamps with an average rated life of 20,000 hours. The lamp lumen maintenance factor at 40% of 24,000 hours, 9600 hours, would be 94%; the lamp lumen maintenance factor at 40% of 30,000 hours, 12,000 hours, would be 93%
95	Recommended to be used on any F32 T8 Instant Start circuit. It is not recommended to be used:(1) with Rapid Start circuits unless the open circuit voltage is greater than 550V, (2) at lamp ambient temperatures below 60 degrees F or in drafty locations, (3) on dimming ballast or (4) inverter operated emergency lighting systems unless any of the above equipment is specifically listed for use with the OCTRON(R) SUPER-SAVER(R) 28 or 30 watt, 4 foot or 30W U-bent T8 lamp. Any of the above situations could result in lamp starting and stabilization problems



## SYMBOLS & FOOTNOTES FOR FLUORESCENT LAMPS

Footnote	Description
96	SAFELINE lamps satisfy the criteria of having a non-shattering covering for prevention of glass and other lamp components in your product by containment within the safety coating material. The covering must be intact or the lamp must be replaced to be in compliance. An onsite inspector will require correction if the lamps are installed improperly or not maintained properly.
97	Average life rating at 12 hours operation per start is 18,000 hours.
98	SAFELINE lamps are intended for indoor use only. Lamps must be used in ambient temperatures below 135 degrees F. The coating is designed to withstand constant operating temperatures up to 239 degrees F and has a melting point in excess of 500 degrees F. Lamps must be used with sockets that provide adequate lamp pin to socket contact. Lamps must not be used with defective ballasts sockets, or fixtures with improper wiring.
99	CAUTION: This lamp emits ultraviolet (UV) power during operation and is in Risk Group 1 per ANSI/IESNA RP-27.3-96. Exposure at less than 0.25 meters (10 inches) should be limited; for example exposure at 0.14m (6 inches) should not exceed 4 hours in an 8 hour interval (see ANSI/IESNA RP-27.1-96). Certain medications and chemicals can increase an individual's sensitivity. Consult your physician for specific information. Protective eyewear should be worn in occupational situations involving long term exposure in close proximity to the lamp. This lamp is not intended and should not be used for diagnostic, therapeutic or cosmetic purposes.
100	WARNING: ICETRON® Inductively Coupled Electrodeless Fluorescent lamp. Read these warnings and instructions before installing and using this lamp. 1. This lamp operates at a higher temperature (130 C) than standard fluorescent lamps. To avoid the possibility of minor skin burns, do not touch lamp or metal mounting brackets during operation and allow sufficient cooling time prior to servicing, handling, or replacing lamp. 2. This lamp generates electric and magnetic fields during operation. The electric and magnetic fields generated by this lamp during operation in typical lighting applications do not pose exposure risks relative to the limits documented in ANSI C95.1. 3. To prevent electric shock, shut off the main power to the fixture and allow at least two minutes for ballast voltage to discharge before attempting to service or replace lamp. 4. To obtain optimum safety and system performance, use only with OSRAM SYLVANIA ballast. 5. To avoid potential electric shock hazard, do not use lamp if wires or insulation are cut or pulled out of connector.
101	WARNING: ICETRON® Inductively Coupled Electrodeless Fluorescent lamp. Read these warnings and instructions before installing and using this lamp. Instructions for Installation and Use. 1) To avoid premature lamp or ballast failure and ensure proper lamp, ballast, and system performance, make sure lamp, ballast, and fixture are properly installed. Electrical interconnects, electrical grounds, thermal management, and heatsinking specifications and requirements must be fully adhered to in all applications. (See OSRAM SYLVANIA ICETRON DESIGN GUIDE.) 2. Do not alter the electrical connector on lamp and/or ballast. To do so may adversely affect lamp operation, ballast life, and/or emission of EMI (electromagnetic interference). 3. This product may cause interference with radios, cordless telephones, and remote control devices. If interference occurs, relocate the radios, cordless telephones, and/or remote control devices away from this product.
102	CAUTION: This lamp emits ultraviolet (UV) power during operation and is in Risk Group 1 per ANSI/IESNA RP-27.3-96. Exposure at less than 0.3 meters (12 inches) should be limited; for example exposure at 0.14m (6 inches) should not exceed 4 hours in an 8 hour interval (see ANSI/IESNA RP-27.1-96). Certain medications and chemicals can increase an individual's sensitivity. Consult your physician for specific information. Protective eyewear should be worn in occupational situations involving long term exposure in close proximity to the lamp. This lamp is not intended and should not be used for diagnostic, therapeutic or cosmetic purposes.
103	CAUTION: This lamp emits ultraviolet (UV) power during operation and is in Risk Group 1 per ANSI/IESNA RP-27.3-96. Exposure at less than 0.35 meters (14 inches) should be limited; for example exposure at 0.25m (10 inches) should not exceed 4 hours in an 8 hour interval (see ANSI/IESNA RP-27.1-96). Certain medications and chemicals can increase an individual's sensitivity. Consult your physician for specific information. Protective eyewear should be worn in occupational situations involving long term exposure in close proximity to the lamp. This lamp is not intended and should not be used for diagnostic, therapeutic or cosmetic purposes.
104	CAUTION: This lamp emits ultraviolet (UV) power during operation and is in Risk Group 2 per ANSI/IESNA RP-27.3-96. Exposure at less than 0.45 meters (18 inches) should be limited; for example exposure at 0.3m (12 inches) should not exceed 4 hours in an 8 hour interval (see ANSI/IESNA RP-27.1-96). Certain medications and chemicals can increase an individual's sensitivity. Consult your physician for specific information. Protective eyewear should be worn in occupational situations involving long term exposure in close proximity to the lamp. This lamp is not intended and should not be used for diagnostic, therapeutic or cosmetic purposes.
105	CAUTION: This lamp emits ultraviolet (UV) power during operation and is in Risk Group 2 per ANSI/IESNA RP-27.3-96. Exposure at less than 0.55 meters (22 inches) should be limited; for example exposure at 0.4m (16 inches) should not exceed 4 hours in an 8 hour interval (see ANSI/IESNA RP-27.1-96). Certain medications and chemicals can increase an individual's sensitivity. Consult your physician for specific information. Protective eyewear should be worn in occupational situations involving long term exposure in close proximity to the lamp. This lamp is not intended and should not be used for diagnostic, therapeutic or cosmetic purposes.
106	CAUTION: This lamp emits ultraviolet (UV) power during operation and is in Risk Group 2 per ANSI/IESNA RP-27.3-96. Exposure at less than 0.65 meters (26 inches) should be limited; for example exposure at 0.45m (18 inches) should not exceed 4 hours in an 8 hour interval (see ANSI/IESNA RP-27.1-96). Certain medications and chemicals can increase an individual's sensitivity. Consult your physician for specific information. Protective eyewear should be worn in occupational situations involving long term exposure in close proximity to the lamp. This lamp is not intended and should not be used for diagnostic, therapeutic or cosmetic purposes.
107	CAUTION: This lamp emits ultraviolet (UV) power during operation and is in Risk Group 2 per ANSI/IESNA RP-27.3-96. Exposure at less than 0.7 meters (28 inches) should be limited; for example exposure at 0.54m (20 inches) should not exceed 4 hours in an 8 hour interval (see ANSI/IESNA RP-27.1-96). Certain medications and chemicals can increase an individual's sensitivity. Consult your physician for specific information. Protective eyewear should be worn in occupational situations involving long term exposure in close proximity to the lamp. This lamp is not intended and should not be used for diagnostic, therapeutic or cosmetic purposes.

## SYMBOLS & FOOTNOTES FOR FLUORESCENT LAMPS

Footnote	Description
108	Average life rating at 12 hours operation per start is 15,000 hours.
109	CAUTION: This lamp emits ultraviolet (UV) power during operation and is in Risk Group 2 per ANSI/IESNA RP-27.3-96. Exposure at less than 0.75 meters (30 inches) should be limited; for example exposure at 0.55m (22 inches) should not exceed 4 hours in an 8 hour interval (see ANSI/IESNA RP-27.1-96). Certain medications and chemicals can increase an individual's sensitivity. Consult your physician for specific information. Protective eyewear should be worn in occupational situations involving long term exposure in close proximity to the lamp. This lamp is not intended and should not be used for diagnostic, therapeutic or cosmetic purposes.
110	CAUTION: This lamp emits ultraviolet (UV) power during operation and is in Risk Group 2 per ANSI/IESNA RP-27.3-96. Exposure at less than 1.0 meters (39 inches) should be limited; for example exposure at 0.64m (24 inches) should not exceed 4 hours in an 8 hour interval (see ANSI/IESNA RP-27.1-96). Certain medications and chemicals can increase an individual's sensitivity. Consult your physician for specific information. Protective eyewear should be worn in occupational situations involving long term exposure in close proximity to the lamp. This lamp is not intended and should not be used for diagnostic, therapeutic or cosmetic purposes.
111	CAUTION: This lamp emits ultraviolet (UV) power during operation and is in Risk Group 2 per ANSI/IESNA RP-27.3-96. Exposure at less than 0.6 meters (24 inches) should be limited; for example exposure at 0.45m (18 inches) should not exceed 4 hours in an 8 hour interval (see ANSI/IESNA RP-27.1-96). Certain medications and chemicals can increase an individual's sensitivity. Consult your physician for specific information. Protective eyewear should be worn in occupational situations involving long term exposure in close proximity to the lamp. This lamp is not intended and should not be used for diagnostic, therapeutic or cosmetic purposes.
112	CAUTION: This lamp emits ultraviolet (UV) power during operation and is in Risk Group 2 per ANSI/IESNA RP-27.3-96. Exposure at less than 0.8 meters (31 inches) should be limited; for example exposure at 0.55m (22 inches) should not exceed 4 hours in an 8 hour interval (see ANSI/IESNA RP-27.1-96). Certain medications and chemicals can increase an individual's sensitivity. Consult your physician for specific information. Protective eyewear should be worn in occupational situations involving long term exposure in close proximity to the lamp. This lamp is not intended and should not be used for diagnostic, therapeutic or cosmetic purposes.
113	CAUTION: This lamp emits ultraviolet (UV) power during operation and is in Risk Group 2 per ANSI/IESNA RP-27.3-96. Exposure at less than 2.0 meters (79 inches) should be limited; for example exposure at 1.4m (55 inches) should not exceed 4 hours in an 8 hour interval (see ANSI/IESNA RP-27.1-96). Certain medications and chemicals can increase an individual's sensitivity. Consult your physician for specific information. Protective eyewear should be worn in occupational situations involving long term exposure in close proximity to the lamp. This lamp is not intended and should not be used for diagnostic, therapeutic or cosmetic purposes.
114	CAUTION: This lamp emits ultraviolet (UV) power during operation and is in Risk Group 1 per ANSI/IESNA RP-27.3-96. Exposure at less than 0.3 meters (12 inches) should be limited; for example exposure at 0.2m (8 inches) should not exceed 4 hours in an 8 hour interval (see ANSI/IESNA RP-27.1-96). Certain medications and chemicals can increase an individual's sensitivity. Consult your physician for specific information. Protective eyewear should be worn in occupational situations involving long term exposure in close proximity to the lamp. This lamp is not intended and should not be used for diagnostic, therapeutic or cosmetic purposes.
115	CAUTION: This lamp emits ultraviolet (UV) power during operation and is in Risk Group 1 per ANSI/IESNA RP-27.3-96. Exposure at less than 0.3 meters (12 inches) should be limited; for example exposure at 0.15m (6 inches) should not exceed 4 hours in an 8 hour interval (see ANSI/IESNA RP-27.1-96). Certain medications and chemicals can increase an individual's sensitivity. Consult your physician for specific information. Protective eyewear should be worn in occupational situations involving long term exposure in close proximity to the lamp. This lamp is not intended and should not be used for diagnostic, therapeutic or cosmetic purposes.
116	A fluorescent jacketed lamp consists of a T12 (1 1/2" diameter) lamp enclosed inside a T14.5 (1 13/16" diameter) glass jacket. A jacketed fluorescent lamp operates efficiently over a wide range of climatic conditions, including extremes of cold and strong wind in which an unjacketed (bare) lamp would be inefficient or inoperable. The jacket size provides the clearance necessary to minimize damaging lamp-jacket contact; narrow bands of rubber placed between the lamp and the jacket further prevent contact. A weather-tight seal is formed by neoprene rubber end caps.
117	Mean lumens at 7,200 hours (40% of 18,000 hour average rated life) equal 4,371. For comparison to an F72T12 Slimline lamp with an average rated life of 12,000 hours use a mean lumen value of 4418 based on 95% lumen maintenance at 4,800 hours,(40% of 12,000 hours).
118	Use only with electronic ballasts which have been specifically designed to operate T2 miniature fluorescent lamps and to reliably and safely control all lamp operating modes including end-of-lamp-life sensing circuitry. If a non-conforming ballast is used, very high temperatures (350 degrees C typical) may be generated at the ends of the lamp especially during end-of-lamp-life operation, causing the lamp to crack and resulting in potential fire, electrical shock, or burn hazards.
119	The life rating of FO32/700/ECO OCTRON® lamps operated on rapid start ballasts is 25,000 hours. The life rating of FO32/700/ECO OCTRON lamps operated on instant start ballasts is 24,000 hours.

# Manufacturers' Cross Reference Guide (continued)

## FLUORESCENT LAMPS

SYLVANIA	GE	PHILIPS
<b>OCTRON®</b>		
F017/830/ECO	F17T8/SPX30/ECO	F17T8/TL830/ALTO
F017/835/ECO	F17T8/SPX35/ECO	F17T8/TL835/ALTO
F017/841/ECO	F17T8/SPX41/ECO	F17T8/TL841/ALTO
		F17T8/TL850/ALTO
F017/827/XP/ECO		
F017/830/XP/ECO	F17T8/XL/SPX30/ECO	F17T8/TL830/PLUS/ALTO
F017/835/XP/ECO	F17T8/XL/SPX35/ECO	F17T8/TL835/PLUS/ALTO
F017/841/XP/ECO	F17T8/XL/SPX41/ECO	F17T8/TL841/PLUS/ALTO
F017/850/XP/ECO	F17T8/XL/SPX50/ECO	F17T8/TL850/PLUS/ALTO
F017/865/XP/ECO	F17T8/XL/SPX65/ECO	F17T8/TL865 /PLUS/ALTO
F017/830XPS/ECO		
F017/835XPS/ECO		
F017/841XPS/ECO		
F025/830/ECO	F25T8/SPX30/ECO	F25T8/TL830/ALTO
F025/835/ECO	F25T8/SPX35/ECO	F25T8/TL835/ALTO
F025/841/ECO	F25T8/SPX41/ECO	F25T8/TL841/ALTO
		F25T8/TL850/ALTO
F025/827/XP/ECO		
F025/830/XP/ECO	F25T8/XP/SPX30/ECO	F25T8/TL830/PLUS/ALTO
F025/835/XP/ECO	F25T8/XP/SPX35/ECO	F25T8/TL835/PLUS/ALTO
F025/841/XP/ECO	F25T8/XP/SPX41/ECO	F25T8/TL841/PLUS/ALTO
F025/850/XP/ECO	F25T8/XP/SPX50/ECO	F25T8/TL850/PLUS/ALTO
F025/865/XP/ECO	F25T8/XP/SPX65/ECO	F25T8/TL865/PLUS/ALTO
F025/830XPS/ECO		
F025/835XPS/ECO		
F025/841XPS/ECO		
F032/25W/830XP/SS/ECO		F32T8/ADV830/XEW/LL/ALTO 25Watt
F032/25W/835XP/SS/ECO		F32T8/ADV835/XEW/LL/ALTO 25Watt
F032/25W/841XP/SS/ECO		F32T8/ADV841/XEW/LL/ALTO 25Watt
F032/25W/850XP/SS/ECO		F32T8/ADV850/XEW/LL/ALTO 25Watt
F028/830XP/SS/ECO	F28T8/SP30UMX/ECO	F32T8/ADV830/EW/LL/ALTO 28Watt
F028/835XP/SS/ECO	F28T8/SP35UMX/ECO	F32T8/ADV835/EW/LL/ALTO 28Watt
F028/841XP/SS/ECO	F28T8/SP41UMX/ECO	F32T8/ADV841/EW/LL/ALTO 28Watt
F028/850XP/SS/ECO	F28T8/SP50UMX/ECO	F32T8/ADV850/EW/LL/ALTO 28Watt
F030/830XP/SS/ECO	F32T8XL/SP30/WM/ECO	F32T8/ADV830/EW/LL/ALTO 30Watt
F030/835XP/SS/ECO	F32T8XL/SP35/WM/ECO	F32T8/ADV835/EW/LL/ALTO 30Watt
F030/841XP/SS/ECO	F32T8XL/SP41/WM/ECO	F32T8/ADV841/EW/LL/ALTO 30Watt
F030/850XP/SS/ECO	F32T8XL/SP50/WM/ECO	F32T8/ADV850/EW/LL/ALTO 30Watt
F032/730/ECO	F32T8/SP30/ECO	F32T8/TL730/ALTO
F032/735/ECO	F32T8/SP35/ECO	F32T8/TL735/ALTO
F032/741/ECO	F32T8/SP41/ECO	F32T8/TL741/ALTO
F032/750/ECO	F32T8/SP50/ECO	F32T8/TL750/ALTO
F032/765/ECO	F32T8/SP65/ECO	
F032/730/XP/ECO	F32T8/XL/SP30/ECO	F32T8/TL730/PLUS/ALTO
F032/735/XP/ECO	F32T8/XL/SP35/ECO	F32T8/TL735/PLUS/ALTO
F032/741/XP/ECO	F32T8/XL/SP41/ECO	F32T8/TL741/PLUS/ALTO
		F32T8/TL750/PLUS/ALTO
F032/830/ECO	F32T8/SPX30/ECO	F32T8/TL830/ALTO
F032/835/ECO	F32T8/SPX35/ECO	F32T8/TL835/ALTO
F032/841/ECO	F32T8/SPX41/ECO	F32T8/TL841/ALTO
F032/850/ECO	F32T8/SPX50/ECO	F32T8/TL850/ALTO
F032/827/XP/ECO	-	-
F032/830/XP/ECO	F32T8/XL/SPX30/ECO	F32T8/TL830 PLUS/ALTO
F032/835/XP/ECO	F32T8/XL/SPX35/ECO	F32T8/TL835 PLUS/ALTO
F032/841/XP/ECO	F32T8/XL/SPX41/ECO	F32T8/TL841 PLUS/ALTO
F032/850/XP/ECO	F32T8/XL/SPX50/ECO	F32T8/TL850 PLUS/ALTO
F032/865/XP/ECO	F32T8/XL/SPX65/ECO	F32T8/TL865 PLUS/ALTO
F032/830XPS/ECO	F32T8SXL/SPX30/ECO	
F032/835XPS/ECO	F32T8SXL/SPX35/ECO	
F032/841XPS/ECO	F32T8SXL/SPX41/ECO	
F032/830XPS/ECO	F32T8/XL/SPX30/HL/ECO	F32T8/ADV830/ALTO
F032/835XPS/ECO	F32T8/XL/SPX35/HL/ECO	F32T8/ADV835/ALTO
F032/841XPS/ECO	F32T8/XL/SPX41/HL/ECO	F32T8/ADV841/ALTO
F032/850XPS/ECO	F32T8/XL/SPX50/HL/ECO	F32T8/ADV850/ALTO
F032/865XPS/ECO		

# Manufacturers' Cross Reference (continued)

## FLUORESCENT LAMPS

SYLVANIA	GE	PHILIPS
<b>OCTRON®</b>		
F040/830/ECO	F40T8/SPX30	F40T8/TL830/ALTO
F040/835/ECO	F40T8/SPX35	F40T8/TL835/ALTO
F040/841/ECO	F40T8/SPX41	F40T8/TL841/ALTO
F040/830/XP/ECO	-	-
F040/835/XP/ECO	-	-
F040/841/XP/ECO	-	-
F096/830XP/SS/ECO	F96T8/XL/SP30/WM	
F096/835XP/SS/ECO	F96T8/XL/SP35/WM	
F096/841XP/SS/ECO	F96T8/XL/SP41/WM	
F096/830/ECO	F96T8/SPX30	F96T8/TL830/ALTO
F096/835/ECO	F96T8/SPX35	F96T8/TL835/ALTO
F096/841/ECO	F96T8/SPX41	F96T8/TL841/ALTO
F096/850/ECO	F96T8/SPX50	F96T8/TL850/ALTO
F096/830/XP/ECO	F96T8/XL/SPX30	F96T8/TL830PLUS/ALTO
F096/835/XP/ECO	F96T8/XL/SPX35	F96T8/TL835PLUS/ALTO
F096/841/XP/ECO	F96T8/XL/SPX41	F96T8/TL841PLUS/ALTO
F096/850/XP/ECO	F96T8/XL/SPX50	F96T8/TL850PLUS/ALTO
-	F96T8/SPX30/HO	F96T8/TL830/HO/PLUS
F096/835/HO	F96T8/SPX35/HO	F96T8/TL835/HO/PLUS
F096/841/HO	F96T8/SPX41/HO	F96T8/TL841/HO/PLUS
<b>OCTRON® CURVALUME®</b>		
FB016/830	-	-
FB016/835	-	-
FB016/841	-	-
FB016/865/XP	-	-
FB024/830	-	-
FB024/835	-	-
FB024/841	-	-
FB031/830	F31T8/SPX30/U	-
FB031/835	F31T8/SPX35/U	-
FB031/841	F31T8/SPX41/U	-
FB029/830/XP/SS/ECO		
FB029/835/XP/SS/ECO		
FB029/841/XP/SS/ECO		
FB031/830/XP/ECO	-	-
FB031/835/XP/ECO	-	-
FB031/841/XP/ECO	-	-
FB030/830/XP/6/SS/ECO		
FB030/835/XP/6/SS/ECO		
FB030/841/XP/6/SS/ECO		
FB032/830/6/ECO	F32T8/SPX30/U/6	FB32T8/TL830/6/ALTO
FB032/835/6/ECO	F32T8/SPX35/U/6	FB32T8/TL835/6/ALTO
FB032/841/6/ECO	F32T8/SPX41/U/6	FB32T8/TL841/6/ALTO
		FB32T8/TL850/6/ALTO
FB032/830/6/XP/ECO	-	-
FB032/835/6/XP/ECO	-	-
FB032/841/6/XP/ECO	-	-
<b>PENTRON® &amp; PENTRON® HO</b>		
FP14/830/ECO	F14W/T5/830/ECO	F14T5/830/ALTO
FP14/835/ECO	F14W/T5/835/ECO	F14T5/835/ALTO
FP14/841/ECO	F14W/T5/841/ECO	F14T5/841/ALTO
	F14W/T5/850/ECO	
FP14/865/ECO	F14W/T5/865/ECO	
FP21/830/ECO	F21W/T5/830/ECO	F21T5/830/ALTO
FP21/835/ECO	F21W/T5/835/ECO	F21T5/835/ALTO
FP21/841/ECO	F21W/T5/841/ECO	F21T5/841/ALTO
	F21W/T5/850/ECO	
FP21/865/ECO	F21W/T5/865/ECO	
FP28/830/ECO	F28W/T5/830/ECO	F28T5/830/ALTO
FP28/835/ECO	F28W/T5/835/ECO	F28T5/835/ALTO
FP28/841/ECO	F28W/T5/841/ECO	F28T5/841/ALTO
FP21/850/ECO	F28W/T5/850/ECO	
FP21/865/ECO	F28W/T5/865/ECO	
FP35/830/ECO	F35W/T5/830/ECO	F35T5/830
FP35/835/ECO	F35W/T5/835/ECO	F35T5/835

# Manufacturers' Cross Reference Guide (continued)

## FLUORESCENT LAMPS

SYLVANIA	GE	PHILIPS
<b>OCTRON® CURVALUME®</b>		
FP35/841/ECO	F35W/T5/841/ECO	F35T5/841
	F35W/T5/850/ECO	
	F35W/T5/865/ECO	
FP24/830/HO/ECO	F24W/T5/830/ECO	F24T5/830/HO/ALTO
FP24/835/HO/ECO	F24W/T5/835/ECO	F24T5/835/HO/ALTO
FP24/841/HO/ECO	F24W/T5/841/ECO	F24T5/841/HO/ALTO
	F24W/T5/850/ECO	
	F24W/T5/865/ECO	
FP39/830/HO/ECO	F39W/T5/830/ECO	FP39/830/HO/ECO/ALTO
FP39/835/HO/ECO	F39W/T5/835/ECO	FP39/835/HO/ECO/ALTO
FP39/841/HO/ECO	F39W/T5/841/ECO	FP39/841/HO/ECO/ALTO
	F39W/T5/850/ECO	
	F39W/T5/865/ECO	
FP54/830/HO/ECO	F54W/T5/830/ECO	F54T5/830/HO/ALTO
FP54/835/HO/ECO	F54W/T5/835/ECO	F54T5/835/HO/ALTO
FP54/841/HO/ECO	F54W/T5/841/ECO	F54T5/841/HO/ALTO
FP54/850/HO/ECO	F54W/T5/850/ECO	F54T5/850/HO/ALTO
FP54/865/HO/ECO	F54W/T5/865/ECO	F54T5/865/HO/ALTO
FP54/835/C/HO/ECO		
FP54/841/C/HO/ECO		
FP54/850/C/HO/ECO		
FP80/830/HO/ECO	F80W/T5/830/ECO	F80T5/830/HO
FP80/835/HO/ECO	F80W/T5/835/ECO	F80T5/835/HO
FP80/841/HO/ECO	F80W/T5/841/ECO	F80T5/841/HO
	F54W/T5/850/ECO	
	F54W/T5/865/ECO	
<b>PENTRON® CIRCLINE</b>		
FPC22/830	-	TL5C 22W/830
FPC22/835	-	TL5C 22W/831
FPC22/841	-	TL5C 22W/832
FPC40/830	-	TL5C 40W/833
FPC40/835	-	TL5C 40W/834
FPC40/841	-	TL5C 40W/835
FPC55/830/HO	-	TL5C 55W/833
FPC55/835/HO	-	TL5C 55W/834
FPC55/841/HO	-	TL5C 55W/835
<b>F40 TYPES (STD &amp; SS)</b>		
F34/D30/SS/ECO	F34/SP30/RS/WM/ECO	
F34/D35/SS/ECO	F34/SP35/RS/WM/ECO	
F34/D41/SS/ECO	F34/SP41/RS/WM/ECO	
F34/D830/SS/ECO	F34/SPX30/RS/WM/ECO	F34/830/RS/EW/ALTO
F34/D835/SS/ECO	F34/SPX35/RS/WM/ECO	F34/835/RS/EW/ALTO
F34/D841/SS/ECO	F34/SPX41/RS/WM/ECO	F34/841/RS/EW/ALTO
		F34/850/RS/EW/ALTO
F40/D30/ECO	F40/SP30/RS/ECO	F40/SPEC30/RS/ALTO
F40/D35/ECO	F40/SP35/RS/ECO	F40/SPEC35/RS/ALTO
F40/D41/ECO	F40/SP41/RS/ECO	F40/SPEC41/RS/ALTO
F40/D830/ECO	F40/SPX30/RS/ECO	F40/830/8RS/ALTO
F40/D835/ECO	F40/SPX35/RS/ECO	F40/835/RS/ALTO
F40/D841/ECO	F40/SPX41/RS/ECO	F40/841/RS/ALTO
-	F40/XL/SP30, 35, 41	
-	F40/XL/SPX30, 35, 41, 50	-
<b>CURVALUME® 3"</b>		
-	F40/SP30/U/3	-
-	F40/SP41/U/3	-
<b>CURVALUME® 6"</b>		
FB34/D30/6/SS	-	FB34/SPEC30/6/EW/ALTO
FB34/D35/6/SS	-	FB34/SPEC35/6/EW/ALTO
FB34/D41/6/SS	-	FB34/SPEC41/6/EW/ALTO
FB40/D30/6	F40/SP30/U/6	FB40/SPEC30/6/ALTO
FB40/D30/6	F40/SP35/U/6	FB40/SPEC35/6/ALTO
FB40/D41/6	F40/SP41/U/6	FB40/SPEC41/6/ALTO
FB40/D830/6	F40/SPX30/U/6	FB40/30U/6/ALTO
-	F40/SPX35/U/6	FB40/35U/6/ALTO
-	-	FB40/41U/6/ALTO

# Manufacturers' Cross Reference (continued)

## FLUORESCENT LAMPS

SYLVANIA	GE	PHILIPS
<b>SLIMLINE</b>		
-	F96T12/SP35/WMP	-
F96T12/D30/SS/ECO	F96T12/SP30/WM/ECO	
F96T12/D35/SS/ECO	F96T12/SP35/WM/ECO	
F96T12/D41/SS/ECO	F96T12/SP41/WM/ECO	
F96T12/D830/SS/ECO	F96T12/SPX30/WM/ECO	F96T12/830/EW/ALTO
F96T12/D835/SS/ECO	F96T12/SPX35/WM/ECO	F96T12/835/EW/ALTO
F96T12/D841/SS/ECO	F96T12/SPX41/WM/ECO	F96T12/841/EW/ALTO
-	F96T12/XL/SP35/WM	-
-	F96T12/XL/SP41/WM	-
F96T12/D30/ECO	F96T12/SP30/ECO	
F96T12/D35/ECO	F96T12/SP35/ECO	
F96T12/D41/ECO	F96T12/SP41/ECO	
F96T12/D830/ECO	F96T12/SPX30/ECO	F96T12/830/ALTO
F96T12/D835/ECO	F96T12/SPX35/ECO	F96T12/835/ALTO
F96T12/D841/ECO	F96T12/SPX41/ECO	F96T12/841/ALTO
-	F96T12/XL/SP35, 41	-
-	F96T12/XL/SPX35, 41, 50	-
<b>HIGH OUTPUT</b>		
F72T12/D830/HO	F72T12/SPX30/HO	F72T12/30U/HO
-	-	
F96T12/D35/HO/SS	F96T12/SP35/HO/WM	
F96T12/D41/HO/SS	F96T12/SP41/HO/WM	
F96T12/D830/HO/SS	F96T12/SPX830/HO/WM	F96T12/830/HO/EW/ALTO
F96T12/D835/HO/SS	F96T12/SPX35/HO/WM	F96T12/835/HO/EW/ALTO
F96T12/D841/HO/SS	F96T12/SPX41/HO/WM	F96T12/841/HO/EW/ALTO
F96T12/D30/HO	F96T12/SP30/HO	
F96T12/D35/HO	F96T12/SP35/HO	
F96T12/D41/HO	F96T12/SP41/HO	
F96T12/D830/HO	F96T12/SPX830/HO	F96T12/830/HO/ALTO
F96T12/D835/HO	F96T12/SPX35/HO	F96T12/835/HO/ALTO
F96T12/D841/HO	F96T12/SPX41/HO	F96T12/841/HO/ALTO
<b>APPLIANCE</b>		
F18T8CW/K24	F24T8/CW/4	
F18T8CW/K26	F26T8/CW/4	F16T8/CW/26
F18T8CW/K28	F28T8/CW/4	F17T8/CW/28
F18T8CW/K30	F30T8/CW/4	F18T8/CW/30/ALTO
F18T8/D/K26	-	-
<b>OTHER RAPID START</b>		
F25T12/D30/RS/SS	F25T12/SP30/RS/WM	-
F25T12/D35/RS/SS	F25T12/SP35/RS/WM	-
F30T12/D35/RS	F30T12/SP35/RS	F30T12/SPEC35/RS
F30T12/D41/RS	F30T12/SP41/RS	F30T12/SPEC41/RS
F30T12/D830/RS	F30T12/SPX30/RS	F30T12/30U/RS
F30T12/D835/RS	F30T12/SPX35/RS	F30T12/35U/RS

FLUORESCENT



LAMP	SIZE	APPLICATION	TYPE
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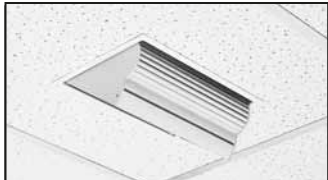
- SURFACE WALL
- SURFACE CEILING
- SEMI-RECESSED
- SURFACE LINEAR
- COVE
- PENDANT
- CANTILEVER
- BASE MOUNT
- TRUSS
- MODIFIED STANDARD
- FINISHES
- OPTIONS
- TECHNICAL

### INDOOR



P1 (Basic), Smooth, Universal

P1 - SS - CFQ26 - 120V - SSRU - SGW - X - STD



P1 (Basic), Ribbed, Simple

P1 - SR - CFQ26 - 120V - SSRS - SGW - X - STD

**Profile** - P1 (basic): Anodized, extruded aluminum specular reflector with solid aluminum endcaps and stainless steel hardware.

**Type** - Small profile with smooth or ribbed detail.

**Indoor**; non-gasketed, captive extruded alum. hinge for lens and baffle options.

**Lens**; open aperture is standard for indoor fixtures.

**Mounting** - 20 ga. GSR painted box, welded construction, and integral ballast.

**Universal**; Adjustable and lockable yoke design with aiming adjustment below ceiling. Installation from above or below ceiling (accessible or inaccessible ceiling types). Additional support may be required by local codes. Auxiliary mounting holes are provided for hanger wire or threaded rods (by others).

**Simple**; Adjustable and lockable features concealed above ceiling with painted steel trim. Installation from above ceiling only (accessible ceiling types only). Ballast compartment

provided with conduit knock-outs. Supplemental supports are required for accessible ceilings (either hanger wires or C-channels, not included). If hanger wire suspension is not possible, specify Hanger bracket (HB) option to accept suspension bars (not provided).

**Performance** - Asymmetric distribution provides a concentration of light on target surface for smooth illumination. Maximum candlepower aimed 30° above nadir has less than 5% spill light within the 0-30° zone and less than 2% spill light within the 90-180° zone.

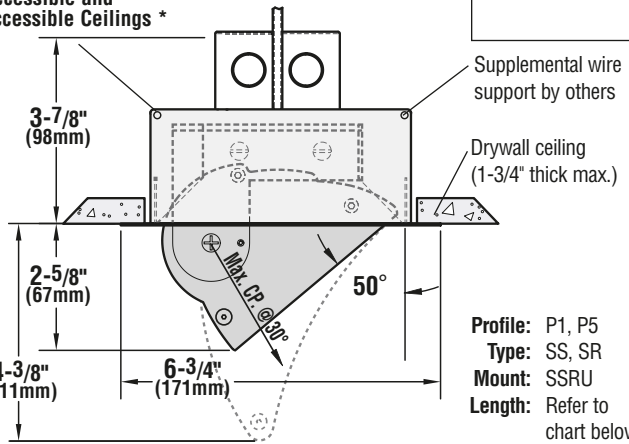
**Electrical** - Integral electronic, HPF ballast, lamp protection circuit, Class P and thermally protected. Provide 90° C supply wire.

**Finishes** - An electrostatically applied wet paint system utilizes a multi-stage process to provide a durable acrylic enamel finish.

**Options** - For complete list and detailed descriptions, refer to Options Section.

### SSRU: Universal Mount (Integral Ballast)

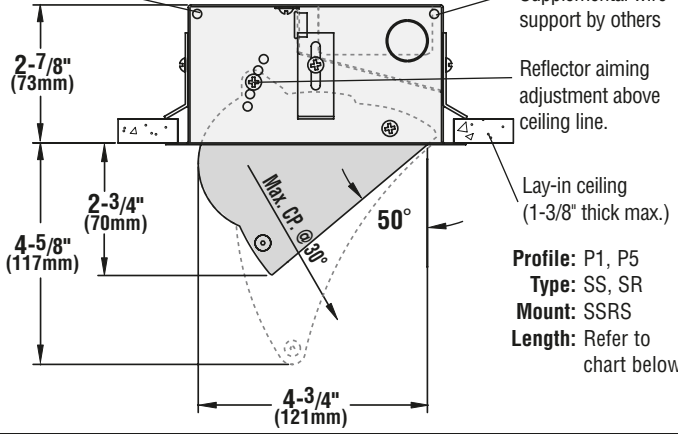
\* Accessible and Inaccessible Ceilings \*



**Profile:** P1, P5  
**Type:** SS, SR  
**Mount:** SSRU  
**Length:** Refer to chart below

### SSRS: Simple Mount (Integral Ballast)

\* Accessible Ceilings Only \*



**Profile:** P1, P5  
**Type:** SS, SR  
**Mount:** SSRS  
**Length:** Refer to chart below

## SPECIFICATIONS

P1	SS	CFQ26	277V	SSRS	SGW	X	STD
PROFILE	TYPE	LAMPING	VOLTAGE	MOUNTING	FINISH	OPTIONS	CLASS
 P1 (basic)	<b>Indoor Locations:</b> (damp label)  <b>SS:</b> Small Smooth  <b>SR:</b> Small Ribbed	<b>Code</b> <b>Description</b> <b>Length</b> <b>Weight</b> <b>Universal Mount</b> CFQ26 (1) CFQ26W/G24q    12-3/4"    6 lbs.	120V or 277V	<b>Integral Ballast</b>    SSRU - Universal    SSRS - Simple	<b>SGW:</b> Semi-Gloss White  <b>SGB:</b> Semi-Gloss Black  <b>ALP:</b> Aluminum Paint (matte finish)  <b>LGP:</b> Light Gold Iridescent (gloss finish)  <b>PBP:</b> Pale Bronze Paint (gloss finish)  <b>SPF:</b> (STD) Standard Painted Finish to be determined  <b>CPF:</b> (MOD) Custom Painted Finish	<b>X:</b> No Options  <b>SB:</b> Straight Blade Baffle (external mount)  <b>PB:</b> Parabolic Blade Baffle (internal mount)  <b>EM:</b> (remote) Emergency Battery  <b>SO:</b> (MOD) Special Option  <b>PL:</b> Plenum Rated (consult factory)  <b>HB:</b> Hanger Bracket  <b>Options</b> - For complete list and detailed descriptions, refer to Options Section.	<b>STD:</b> Indicate only when specifying a standard.  <b>MOD:</b> Indicate when specifying any modification.
		<b>Code</b> <b>Description</b> <b>Length</b> <b>Weight</b> <b>Simple Mount (Accessible Ceiling Only)</b> CFQ26 (1) CFQ26W/G24q    12-3/4"    6 lbs.			  SSRS - Simple	<b>PHOTOMETRY</b>  CFQ26 Refer to Technical Section for detailed Photometry Reports. <b>Report #9133</b>	



## Compact SE Overview

For designs requiring the energy savings and aesthetic appeal of dimmed T4 compact fluorescent or T5 twin-tube lamps, Compact SE dimming ballasts are your solution. The Compact SE product family includes ballasts for nearly every type of dimmable compact fluorescent lamp.

### Features

- Continuous, flicker-free dimming from 100% to 5%
- Standard 3-wire line-voltage phase-control technology for consistent fixture-to-fixture dimming performance
- Models for 4-pin T4 compact lamps and T5 twin-tube lamps
- Programmed rapid start design will preheat 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 eliminate circuit breaker tripping, switch arcing, and relay failure
- End-of-lamp-life protection circuitry ensures safe operation throughout entire lamp life cycle
- Ultra quiet operation
- Protected from miswires of any input power to control lead, or lamp leads to each other or ground
- 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
- Ballasts that dim T4 compact fluorescent lamps are intended for factory installation by OEM fixture manufacturer



### Compact SE, case type A

3.00 in. w (76 mm) x 1.00 in. h (25 mm) x 4.90 in. l (124 mm)



### Compact SE, case type B

3.00 in. w (76 mm) x 1.00 in. h (25 mm) x 6.75 in. l (171 mm)



### Compact SE, case type F

2.38 in. w (60 mm) x 1.50 in. h (38 mm) x 9.50 in. l (241 mm)

Job Name:

Model Numbers:

Job Number:

## Specifications

### Performance

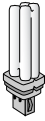


- Dimming Range: 100% to 5% measured relative light output (RLO)
- Lamp Starting: programmed rapid start
- Minimum Lamp Starting Temperature: 10 °C (50 °F)
- Ambient Temperature Operating Range: 10 °C (50 °F) to 60 °C (140 °F)
- Relative Humidity: maximum 90% non-condensing
- Operating Voltage: 120 V or 277 V at 60Hz
- Lamp Current Crest Factor: less than 1.7
- Lamp Flicker: none visible
- Light Output: constant  $\pm 2\%$  light output for line voltage variations of  $\pm 10\%$
- Lamp Life: average lamp life meets or exceeds rating of lamp manufacturer
- Ballast Factor: greater than .95 for T4 quad or triple tube lamps, and greater than .85 for T5 twin-tube lamps
- Power Factor: greater than .95
- Total Harmonic Distortion (THD): less than 10%
- 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 for EMI/RFI emissions requirements
- T4 compact fluorescent ballasts are MIL Std. 461E compliant (meets the requirements of CE101, RE101 and RE102)
- Meets ANSI C62.41 Category A surge protection standards to 6 kV
- Manufacturing facilities employ ESD reduction practices that comply with the requirements of ANSI/ESD S20.20
- Lutron Quality Systems registered to ISO 9001

Job Name:	Model Numbers:
Job Number:	

## Compact SE Ballast Models

Lamp Type				120 VOLTS		277 VOLTS		
	Lamp Watts	Lamps per ballast	Case Type	Ballast Current (amps)	Compact SE Model Number <sup>1</sup>	Ballast Current (amps)	Compact SE Model Number <sup>1</sup>	
 1/2 in. diameter	18 W	1	A	.20	FDB-T418-120-1-S	.08	FDB-T418-277-1-S	
		2	B	.42	FDB-T418-120-2-S	.17	FDB-T418-277-2-S	
	26 W	1	A	.26	FDB-T426-120-1-S	.12	FDB-T426-277-1-S	
		2	B	.50	FDB-T426-120-2-S	.21	FDB-T426-277-2-S	
	 1/2 in. diameter	18 W	1	A	.20	FDB-T418-120-1-S	.08	FDB-T418-277-1-S
			2	B	.42	FDB-T418-120-2-S	.17	FDB-T418-277-2-S
26 W		1	A	.26	FDB-T426-120-1-S	.12	FDB-T426-277-1-S	
		2	B	.50	FDB-T426-120-2-S	.21	FDB-T426-277-2-S	
32 W	1	A	.31	FDB-T432-120-1-S	.13	FDB-T432-277-1-S		
	2	B	.59	FDB-T432-120-2-S	.24	FDB-T432-277-2-S		
42 W	1	B	.36	FDB-T442-120-1-S	.16	FDB-T442-277-1-S		
	2	B	.67	FDB-T442-120-2-S	.29	FDB-T442-277-2-S		
 5/8 in. diameter	36/39 W (16 in.)	1	F	.33	FDB-1643-120-1*	.14	FDB-1643-277-1*	
		2	F	.58	FDB-1643-120-2*	.25	FDB-1643-277-2*	
		3	F	.85	FDB-1643-120-3*	.35	FDB-1643-277-3*	
	40 W (22 in.)	1	F	.33	FDB-2227-120-1*	.14	FDB-2227-277-1*	
		2	F	.61	FDB-2227-120-2*	.25	FDB-2227-277-2*	
		3	F	.88	FDB-2227-120-3*	.38	FDB-2227-277-3*	
	50 W (22 in.)	1	F	.38	FDB-2243-120-1*	.17	FDB-2243-277-1*	
		2	F	.69	FDB-2243-120-2*	.32	FDB-2243-277-2*	

<sup>1</sup> Mounting studs standard for T4 ballasts. Delete suffix -S in the model number if mounting studs not needed.

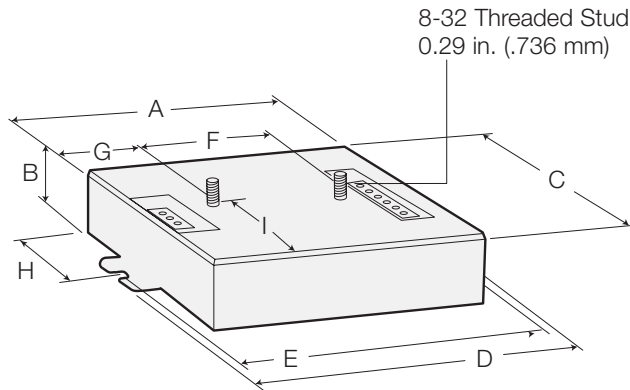
\* UL certified only



Job Name:	Model Numbers:
Job Number:	

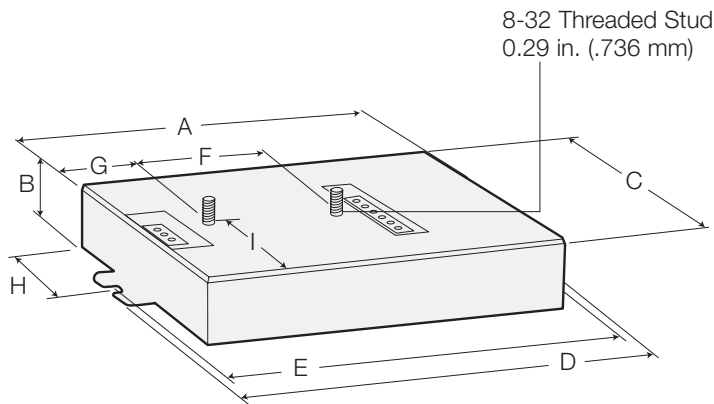
## Case Dimensions

### A<sup>1</sup>



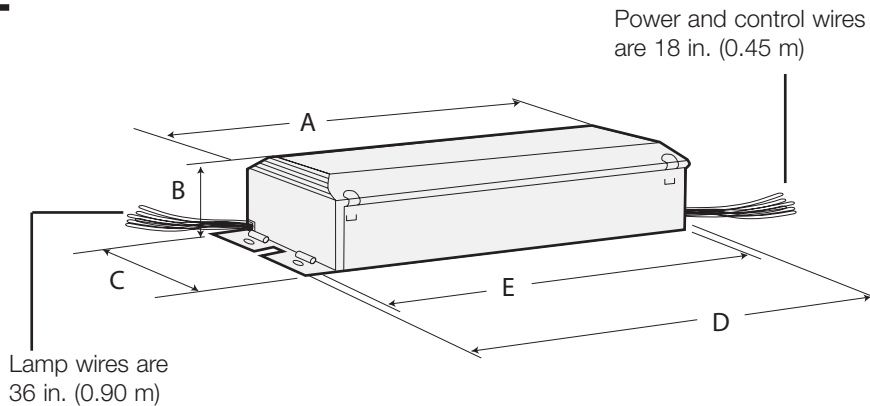
A	4.20 in. (107 mm)
B	1.00 in. (25 mm)
C	3.00 in. (76 mm)
D	4.90 in. (124 mm)
E	4.60 in. (117 mm) (mounting centers)
F	2.00 in. (51 mm)
G	1.08 in. (27 mm)
H	1.60 in. (41 mm)
I	1.39 in. (35 mm)

### B<sup>1</sup>



A	6.00 in. (152 mm)
B	1.00 in. (25 mm)
C	3.00 in. (76 mm)
D	6.75 in. (171 mm)
E	6.50 in. (165 mm) (mounting centers)
F	2.00 in. (51 mm)
G	1.00 in. (29 mm)
H	1.60 in. (41 mm)
I	1.39 in. (35 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).

<sup>1</sup> Mounting studs standard. When ordering, delete suffix -S in the ballast model number if mounting studs not needed.

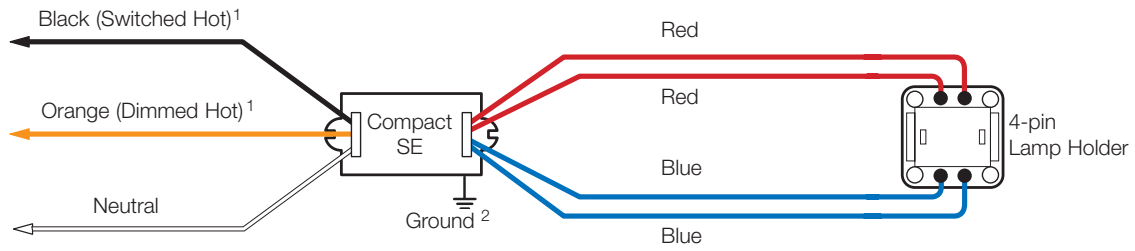
Job Name:

Model Numbers:

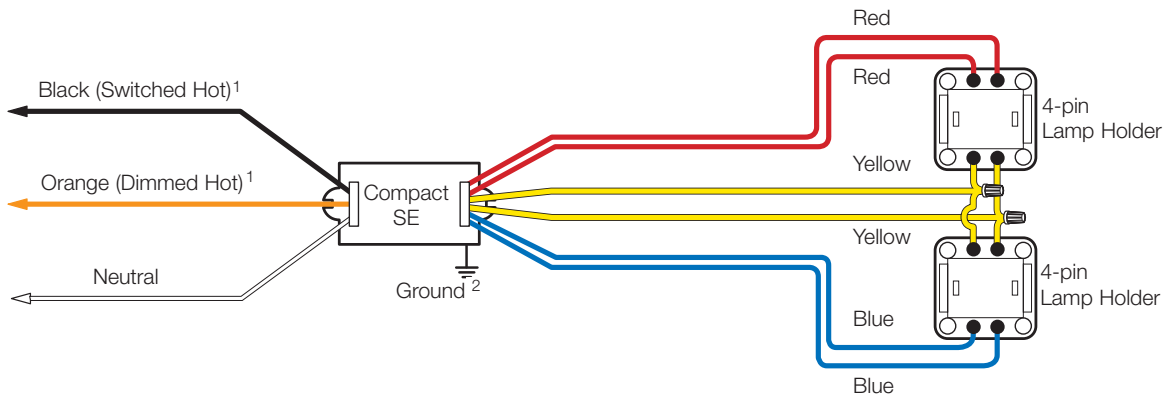
Job Number:

## Wiring Diagrams

### One compact fluorescent lamp



### Two compact fluorescent lamps



<sup>1</sup> 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 controls and ballasts only.

<sup>2</sup> Ballast and lighting fixture must be effectively grounded.

Note: For T4 compact lamps, maximum lamp-to-ballast wire length is 3 feet (1 m).

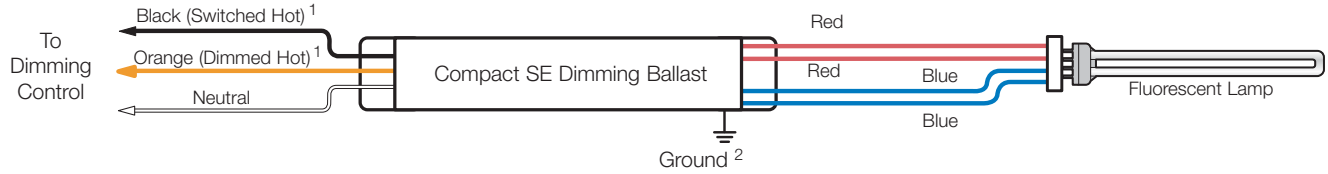
Job Name:

Model Numbers:

Job Number:

## Compact SE Wiring Diagrams

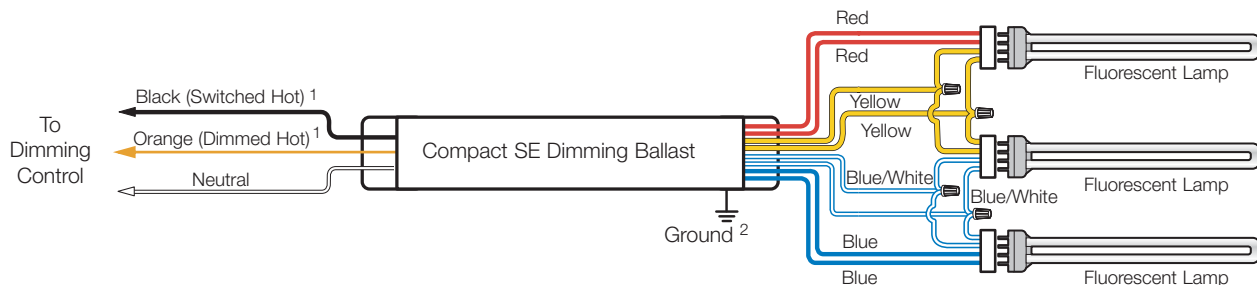
### One T5 twin-tube lamp



### Two T5 twin-tube lamps



### Three T5 twin-tube lamps



<sup>1</sup> 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.

<sup>2</sup> 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).

Job Name:

Model Numbers:

Job Number:



### ATTENTION ELECTRICIANS AND CONTRACTORS

#### Ballast/Socket Leads

Lead lengths from ballast to socket must not exceed 3 ft. (1 m) for T4 and T5 twin-tube lamps.

#### Lamp Sockets

Quality lamp sockets are required to ensure positive lamp-pin to socket contact. T4 compact sockets must be the 4 pin type, and must be used with 4 pin compact lamps. T5 twin-tube lamps require sockets that lock into the lamp base and provide proper lamp support to hold lamp pins in full contact with socket.

#### Lamp Mounting for T5 Twin-Tube

Many fluorescent lamp sockets are available with mounting slots to vary the height of the lamp away from the grounded metal surface. Use these slots to keep the outside edge of the lamp at least 1/4 in. away from the grounded metal surface.

Having a fluorescent lamp too close to the grounded metal will make the minimum intensity too low and will reduce lamp life.

#### Wiring and Grounding

All wiring from the dimming control to Compact SE ballasts is line voltage wiring and may be run together in the same conduit.

Ballast and lighting fixture must be effectively grounded. Ballasts must be installed per national and local electrical codes.

#### Number of Ballasts Per Control

To calculate the maximum number of ballasts allowed per control, divide control's current capacity by individual ballast current. Certain controls allow a specific maximum number of ballasts.

#### Ballast Operating Temperature

Ballast case temperature must not exceed 75 °C at any point on ballast.



### ATTENTION FACILITIES MANAGERS

#### PERFORMANCE

##### Lamps Must Be Seasoned

New fluorescent lamps must be operated for 100 hours at full output ("seasoned") to render lamp impurities inert, so as to achieve proper dimming performance and average rated lamp life.

#### SERVICE

##### Replacement Parts

Use replacement parts with exact Lutron model numbers. Consult Lutron if you have any questions.

##### Further Information

Ballasts for other lamp types and voltages are available. Consult Lutron's Fluorescent Dimming Systems Selection Guide (P/N 366-002).

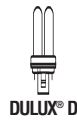
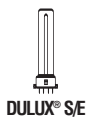
For further information, please visit us at <http://www.lutron.com/ballasts> or contact our 24-hour Technical Support Center at 1-800-523-9466.

Job Name:

Model Numbers:

Job Number:





## DULUX S/E 4-PIN COMPACT FLUORESCENT LAMPS

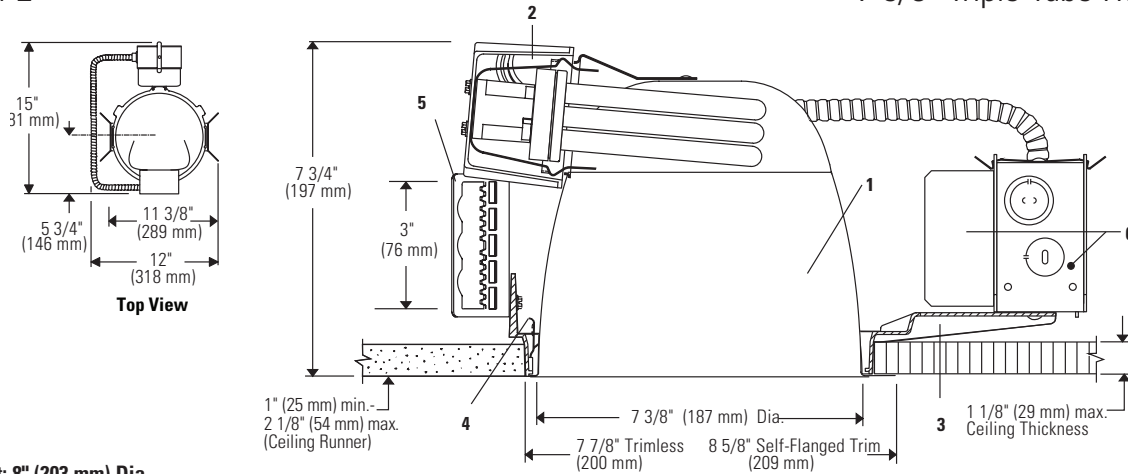
for Dimming and Electronic Ballast. Lamps have End-of-lamp Life (EOL) Protection

Nominal Wattage	Bulb	MOL		Base	Product Number	Ordering Abbreviation	NEMA Generic Designation	Pkg Qty	Avg Rated Life (hrs)	CCT (K)	CRI	Approx Lumens @25°C/77°F		Symbols & Footnotes
		(in)	(mm)									Initial	Mean	
5	S (T4)	3.4	85	2G7	20311	<b>CF5DS/E/827</b>	CFT5W/2G7/827	50	10000	2700	82	230	198	1,2,5,12,16,20
					20315	<b>CF5DS/E/841</b>	CFT5W/2G7/841	50	10000	4100	82	230	198	1,2,5,12,16,20
7	S (T4)	4.5	115	2G7	20312	<b>CF7DS/E/827</b>	CFT7W/2G7/827	50	10000	2700	82	400	344	1,2,5,12,16,20
					20316	<b>CF7DS/E/841</b>	CFT7W/2G7/841	50	10000	4100	82	400	344	1,2,5,12,16,20
9	S (T4)	5.7	145	2G7	20313	<b>CF9DS/E/827</b>	CFT9W/2G7/827	50	10000	2700	82	580	499	1,2,5,12,20
					20317	<b>CF9DS/E/841</b>	CFT9W/2G7/841	50	10000	4100	82	580	499	1,2,5,12,20
13	S (T4)	6.2	157	2GX7	20314	<b>CF13DS/E/827</b>	CFT13W/2GX7/827	50	10000	2700	82	800	688	1,2,5,12,20
					20284	<b>CF13DS/E/830</b>	CFT13W/2GX7/830	50	10000	3000	82	800	688	1,2,5,12,20
					20318	<b>CF13DS/E/841</b>	CFT13W/2GX7/841	50	10000	4100	82	800	688	1,2,5,12,20

## DULUX D PREHEAT 2-PIN ECOLOGIC® COMPACT FLUORESCENT LAMPS

With starter in Lamp Base for Magnetic Ballast

Nominal Wattage	Bulb	MOL		Base	Product Number	Ordering Abbreviation	NEMA Generic Designation	Pkg Qty	Avg Rated Life (hrs)	CCT (K)	CRI	Approx Lumens @25°C/77°F		Symbols & Footnotes
		(in)	(mm)									Initial	Mean	
9	D (T4)	4.3	110	G23-2	20537	<b>CF9DD/827/RP/ECO</b>	CFQ9W/G23/827	10	10000	2700	82	525	452	1,4,6,11,12,20,22
					20689	<b>CF9DD/827/ECO</b>	CFQ9W/G23/827	50	10000	2700	82	525	452	1,4,6,11,12,20,22
					20783	<b>CF9DD/830/ECO</b>	CFQ9W/G23/830	50	10000	3000	82	525	452	1,4,6,11,12,20,22
					20690	<b>CF9DD/835/ECO</b>	CFQ9W/G23/835	50	10000	3500	82	525	452	1,4,6,11,12,20,22
13	D (T4)	4.6	118	GX23-2	20691	<b>CF13DD/827/ECO</b>	CFQ13W/GX23/827	50	10000	2700	82	780	671	1,4,6,11,12,20,22
					20705	<b>CF13DD/830/ECO</b>	CFQ13W/GX23/830	50	10000	3000	82	780	671	1,4,6,11,12,20,22
					20692	<b>CF13DD/835/ECO</b>	CFQ13W/GX23/835	50	10000	3500	82	780	671	1,4,6,11,12,20,22
					20708	<b>CF13DD/841/ECO</b>	CFQ13W/GX23/841	50	10000	4100	82	780	671	1,4,6,11,12,20,22
18	D (T4)	6.0	153	G24D-2	20676	<b>CF18DD/827/ECO</b>	CFQ18W/G24D/827	50	10000	2700	82	1150	989	1,4,6,11,12,20,22
					20709	<b>CF18DD/830/ECO</b>	CFQ18W/G24D/830	50	10000	3000	82	1150	989	1,4,6,11,12,20,22
					20677	<b>CF18DD/835/ECO</b>	CFQ18W/G24D/835	50	10000	3500	82	1150	989	1,4,6,11,12,20,22
					20678	<b>CF18DD/841/ECO</b>	CFQ18W/G24D/841	50	10000	4100	82	1150	989	1,4,6,11,12,20,22
26	D (T4)	6.8	173	G24D-3	20679	<b>CF26DD/827/ECO</b>	CFQ26W/G24D/827	50	10000	2700	82	1710	1470	1,4,6,11,12,20,22
					20710	<b>CF26DD/830/ECO</b>	CFQ26W/G24D/830	50	10000	3000	82	1710	1470	1,4,6,11,12,20,22
					20680	<b>CF26DD/835/ECO</b>	CFQ26W/G24D/835	50	10000	3500	82	1710	1470	1,4,6,11,12,20,22
					20681	<b>CF26DD/841/ECO</b>	CFQ26W/G24D/841	50	10000	4100	82	1710	1470	1,4,6,11,12,20,22



Ceiling Cutout: 8" (203 mm) Dia.

Reflector Trim	Frame-In Kit
<b>8037CLW</b> Clear Iridescence Free, White Flange	<b>S7126BU</b> 7" aperture, 1 lamp 26W Triple Tube CFL (120/277V) 4-Pin (Amalgam)
<b>8037CLP</b> Clear Iridescence Free, Polished Flange	<b>S7132BU</b> 7" aperture, 1 lamp 26/32W Triple Tube CFL (120/277V) 4-Pin (Amalgam)
<b>8037CL</b> Clear Iridescence Free, Molded Trim Ring	<b>S7142BU</b> 7" aperture, 1 lamp 26/32/42W Triple Tube CFL (120/277V) 4-Pin (Amalgam)
<b>8037</b> <input type="checkbox"/> Add suffix. See options for other finishes.	<b>Dimming Options:</b>
	<b>S7132B</b> <input type="checkbox"/> or <b>S7142B</b> <input type="checkbox"/>
	<b>CU3</b> Lightolier PowerSpec 3% Dimming (120/277V) <b>J1LD3</b> Lutron 5% Dimming (120V)
	<b>J2LD3</b> Lutron 5% Dimming (277V) <b>JUM7</b> Mark 7 Dimming (120/277V)
	<b>J1MX</b> Mark 10 Dimming (120V) <b>J2MX</b> Mark 10 Dimming (277V)
	Other dimming product available, please consult factory
Remodeler Frame-In Kits	
<b>7126BURM</b>	7" aperture, 1 lamp 26W Triple Tube CFL (120/277V) 4-Pin (Amalgam)
<b>7132BURM</b>	7" aperture, 1 lamp 26/32W Triple Tube CFL (120/277V) 4-Pin (Amalgam)
<b>7142BURM</b>	7" aperture, 1 lamp 26/32/42W Triple Tube CFL (120/277V) 4-Pin (Amalgam)

## Features

- 1. Reflector:** 16 ga. Alzak® aluminum, 55° visual cutoff to lamp and lamp image, wide distribution. Iridescence Free finish. Self-flanged or flangeless with molded white trim ring (field paintable).
- 2. Socket Cup:** Snaps onto reflector neck to assure consistently correct optical alignment without tools.
- 4. Retaining Springs:** Precision-tooled steel friction springs secure reflector to mounting frame for quick, tool-less installation.
- 5. Mounting Brackets:** 16 ga. steel. Adjust from inside of fixture. Use 3/4" or 1 1/2" lathing channel, 1/2" EMT, or optional mounting bars.
- 6. Ballast/J-Box:** Outboard mounted to reduce heat transfer and maintain lamp efficacy and life. Service from below without tools.

## Electrical

**Note:** Note: For ballast electrical data and latest lamp/ballast compatibility refer to "Ballast" specification sheet for complete electrical data.

UL Listed for through branch circuit wiring with max of (8) No 12 AWG, 90 degree C supply conductors.

## Options and Accessories

Comfort Clear™ Finishes <sup>1</sup>	Other Finishes		
Clear	<b>CCL</b>	White	<b>WH</b>
Diffuse	<b>CCD</b>	Multigroove	<b>MG</b>
Champagne Bronze	<b>CCZ</b>		

<sup>1</sup>Specify desired flange

**W** White, **P** Polished

Blank - Molded Ring

## Options and Accessories (continued)

Emergency	Add suffix <b>EM*</b>
Chicago Plenum	Add suffix <b>LC</b>
Existing/Thk. Ceiling	<b>FA EC7*</b>
Emergency Ltg. Kit	<b>FA EM3E*</b>
	<b>FA EM4E*</b>

Fuse (Slow Blow) Add Suffix **F**

\*See Spec. Sheets: FAEC, FAEM

Mounting Bars & Accessories; see Specification Sheet MBA.

Sloped Ceiling Adapters; see Specification Sheet SCA.

## Labels

UL listed for damp locations, I.B.E.W.

Alzak® is a registered trademark of ALCOA

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

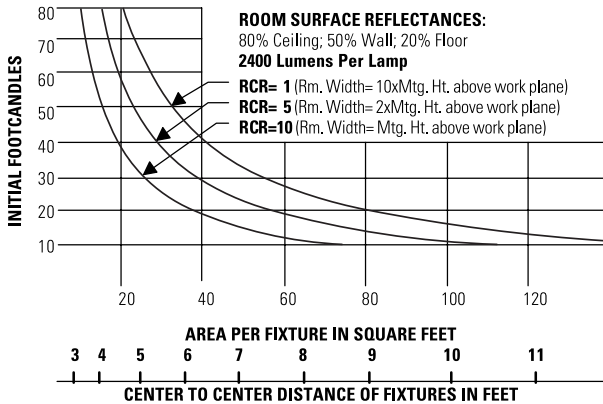
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### 32W

#### Quick Calculator



This quick calculator chart determines the number and spacing of 1 ft.- 32W PL-T units with clear reflector, for any level of illumination.

#### Spacing Ratio = 1.3

Report No.: LRL 796-1G

PREPARED BY: LIGHTING RESEARCH LABORATORY, INC

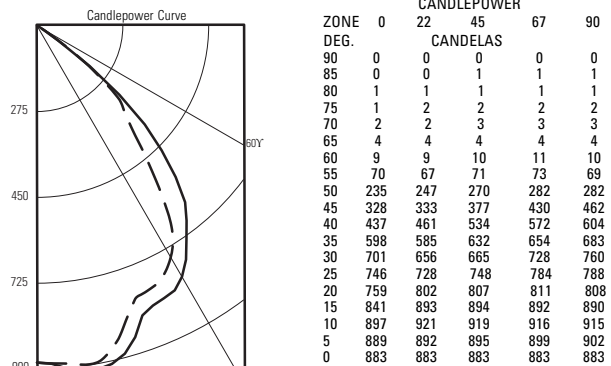
PREPARED FOR: LIGHTOLIER

DESCRIP.: 7-3/8" dia. x 7" Ht. recessed downlight

- open bottom spun semispecular reflector; tilted horizontal lamp

BALLAST: LIGHTOLIER GLT423-120I.

LAMPS: 1 PLT-32W rated at 2400 LUMENS.



\*\* EFFICIENCY = 61.3% \*\*

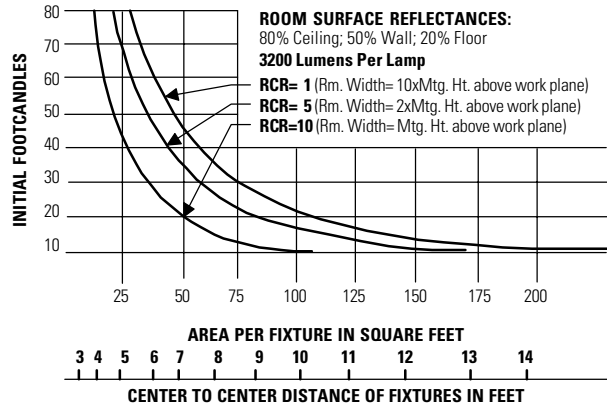
#### Coefficients Of Utilization

ROOM CAVITY RATIO	% EFFECTIVE CEILING CAVITY REFLECTANCE															
	80			70			50			30			10			0
	50	30	10	50	30	10	50	30	10	50	30	10	50	30	10	0
1	.67	.65	.63	.65	.64	.62	.63	.61	.60	.60	.59	.58	.58	.58	.57	.56
2	.61	.58	.55	.60	.57	.55	.58	.55	.54	.56	.54	.52	.54	.53	.51	.50
3	.55	.52	.49	.55	.51	.49	.53	.50	.48	.51	.49	.47	.50	.48	.46	.45
4	.51	.47	.44	.50	.46	.43	.49	.45	.43	.47	.45	.42	.46	.44	.42	.41
5	.47	.42	.39	.46	.42	.39	.45	.41	.39	.44	.41	.38	.43	.40	.38	.37
6	.43	.38	.35	.42	.38	.35	.41	.38	.35	.40	.37	.35	.39	.37	.34	.33
7	.39	.35	.33	.39	.35	.32	.38	.34	.32	.37	.34	.31	.37	.34	.31	.30
8	.36	.32	.29	.36	.32	.29	.35	.32	.29	.35	.31	.29	.34	.31	.29	.28
9	.34	.30	.27	.33	.29	.27	.33	.29	.27	.32	.29	.26	.32	.29	.26	.25
10	.31	.27	.25	.31	.27	.24	.31	.27	.24	.30	.27	.24	.30	.26	.24	.23

20% FLOOR CAVITY REFLECTANCE

### 42W

#### Quick Calculator



This quick calculator chart determines the number and spacing of 1 ft.- 42W PL-T units with clear reflector, for any level of illumination.

#### Spacing Ratio = 1.4

Report No.: LRL 796-1F

PREPARED BY: LIGHTING RESEARCH LABORATORY, INC

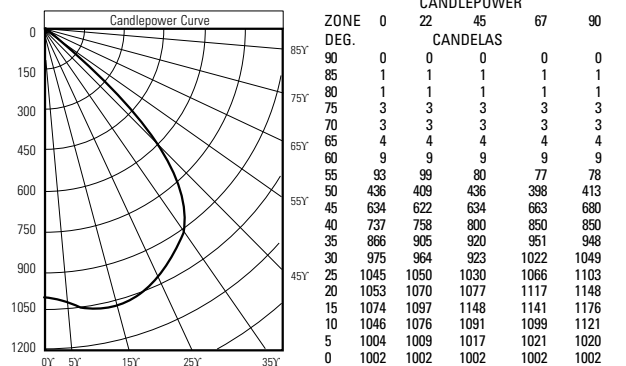
PREPARED FOR: LIGHTOLIER

DESCRIP.: 7-3/8" dia. x 7" Ht. recessed downlight

- open bottom spun semispecular reflector; tilted horizontal lamp

BALLAST: LIGHTOLIER GLT423-120I.

LAMPS: 1 PLT-42W rated at 3200 LUMENS.



\*\* EFFICIENCY = 65.4% \*\*

#### Coefficients Of Utilization

ROOM CAVITY RATIO	% EFFECTIVE CEILING CAVITY REFLECTANCE															
	80			70			50			30			10			0
	50	30	10	50	30	10	50	30	10	50	30	10	50	30	10	0
1	.72	.70	.69	.71	.69	.68	.68	.67	.66	.65	.64	.64	.63	.62	.62	.61
2	.67	.64	.62	.66	.63	.61	.64	.62	.60	.62	.60	.59	.60	.59	.57	.56
3	.62	.59	.56	.61	.58	.56	.60	.57	.55	.58	.56	.54	.57	.55	.53	.52
4	.57	.54	.51	.57	.53	.50	.55	.52	.50	.54	.51	.49	.53	.50	.49	.48
5	.53	.49	.46	.53	.49	.46	.51	.48	.46	.50	.47	.45	.49	.47	.45	.44
6	.49	.45	.42	.49	.45	.42	.48	.44	.42	.47	.44	.41	.46	.43	.41	.40
7	.45	.41	.38	.45	.41	.38	.44	.40	.38	.43	.40	.37	.42	.40	.37	.36
8	.42	.37	.34	.41	.37	.34	.40	.37	.34	.40	.36	.34	.39	.36	.34	.33
9	.38	.34	.31	.38	.34	.31	.37	.33	.31	.36	.33	.30	.36	.33	.30	.29
10	.33	.29	.26	.33	.29	.26	.32	.28	.26	.32	.28	.25	.31	.28	.25	.24

20% FLOOR CAVITY REFLECTANCE

### Job Information Type:

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## Compact SE Overview

For designs requiring the energy savings and aesthetic appeal of dimmed T4 compact fluorescent or T5 twin-tube lamps, Compact SE dimming ballasts are your solution. The Compact SE product family includes ballasts for nearly every type of dimmable compact fluorescent lamp.

### Features

- Continuous, flicker-free dimming from 100% to 5%
- Standard 3-wire line-voltage phase-control technology for consistent fixture-to-fixture dimming performance
- Models for 4-pin T4 compact lamps and T5 twin-tube lamps
- Programmed rapid start design will preheat 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 eliminate circuit breaker tripping, switch arcing, and relay failure
- End-of-lamp-life protection circuitry ensures safe operation throughout entire lamp life cycle
- Ultra quiet operation
- Protected from miswires of any input power to control lead, or lamp leads to each other or ground
- 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
- Ballasts that dim T4 compact fluorescent lamps are intended for factory installation by OEM fixture manufacturer



### Compact SE, case type A

3.00 in. w (76 mm) x 1.00 in. h (25 mm) x 4.90 in. l (124 mm)



### Compact SE, case type B

3.00 in. w (76 mm) x 1.00 in. h (25 mm) x 6.75 in. l (171 mm)



### Compact SE, case type F

2.38 in. w (60 mm) x 1.50 in. h (38 mm) x 9.50 in. l (241 mm)

Job Name:

Model Numbers:

Job Number:

## Specifications

### Performance

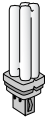


- Dimming Range: 100% to 5% measured relative light output (RLO)
- Lamp Starting: programmed rapid start
- Minimum Lamp Starting Temperature: 10 °C (50 °F)
- Ambient Temperature Operating Range: 10 °C (50 °F) to 60 °C (140 °F)
- Relative Humidity: maximum 90% non-condensing
- Operating Voltage: 120 V or 277 V at 60Hz
- Lamp Current Crest Factor: less than 1.7
- Lamp Flicker: none visible
- Light Output: constant  $\pm 2\%$  light output for line voltage variations of  $\pm 10\%$
- Lamp Life: average lamp life meets or exceeds rating of lamp manufacturer
- Ballast Factor: greater than .95 for T4 quad or triple tube lamps, and greater than .85 for T5 twin-tube lamps
- Power Factor: greater than .95
- Total Harmonic Distortion (THD): less than 10%
- 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 for EMI/RFI emissions requirements
- T4 compact fluorescent ballasts are MIL Std. 461E compliant (meets the requirements of CE101, RE101 and RE102)
- Meets ANSI C62.41 Category A surge protection standards to 6 kV
- Manufacturing facilities employ ESD reduction practices that comply with the requirements of ANSI/ESD S20.20
- Lutron Quality Systems registered to ISO 9001

Job Name:	Model Numbers:
Job Number:	

## Compact SE Ballast Models

Lamp Type				120 VOLTS		277 VOLTS		
	Lamp Watts	Lamps per ballast	Case Type	Ballast Current (amps)	Compact SE Model Number <sup>1</sup>	Ballast Current (amps)	Compact SE Model Number <sup>1</sup>	
 1/2 in. diameter	18 W	1	A	.20	FDB-T418-120-1-S	.08	FDB-T418-277-1-S	
		2	B	.42	FDB-T418-120-2-S	.17	FDB-T418-277-2-S	
	26 W	1	A	.26	FDB-T426-120-1-S	.12	FDB-T426-277-1-S	
		2	B	.50	FDB-T426-120-2-S	.21	FDB-T426-277-2-S	
	 1/2 in. diameter	18 W	1	A	.20	FDB-T418-120-1-S	.08	FDB-T418-277-1-S
			2	B	.42	FDB-T418-120-2-S	.17	FDB-T418-277-2-S
26 W		1	A	.26	FDB-T426-120-1-S	.12	FDB-T426-277-1-S	
		2	B	.50	FDB-T426-120-2-S	.21	FDB-T426-277-2-S	
32 W	1	A	.31	FDB-T432-120-1-S	.13	FDB-T432-277-1-S		
	2	B	.59	FDB-T432-120-2-S	.24	FDB-T432-277-2-S		
 5/8 in. diameter	36/39 W (16 in.)	1	F	.33	FDB-1643-120-1*	.14	FDB-1643-277-1*	
		2	F	.58	FDB-1643-120-2*	.25	FDB-1643-277-2*	
		3	F	.85	FDB-1643-120-3*	.35	FDB-1643-277-3*	
	40 W (22 in.)	1	F	.33	FDB-2227-120-1*	.14	FDB-2227-277-1*	
		2	F	.61	FDB-2227-120-2*	.25	FDB-2227-277-2*	
		3	F	.88	FDB-2227-120-3*	.38	FDB-2227-277-3*	
	50 W (22 in.)	1	F	.38	FDB-2243-120-1*	.17	FDB-2243-277-1*	
		2	F	.69	FDB-2243-120-2*	.32	FDB-2243-277-2*	

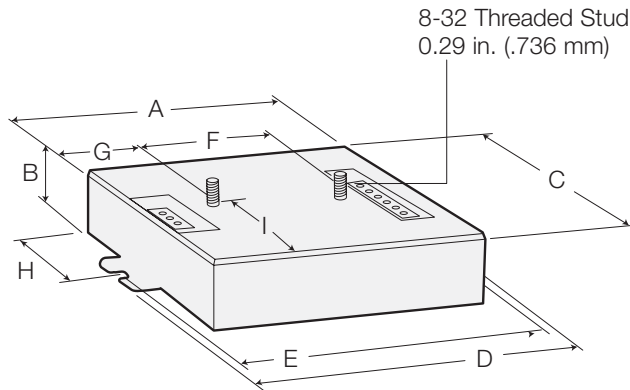
<sup>1</sup> Mounting studs standard for T4 ballasts. Delete suffix -S in the model number if mounting studs not needed.

\* UL certified only

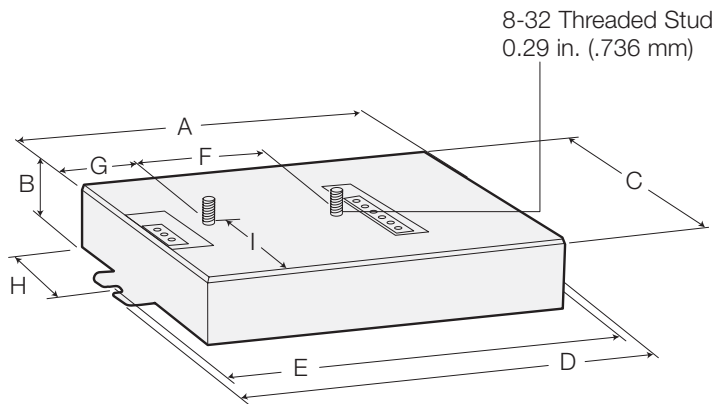


Job Name:	Model Numbers:
Job Number:	

## Case Dimensions

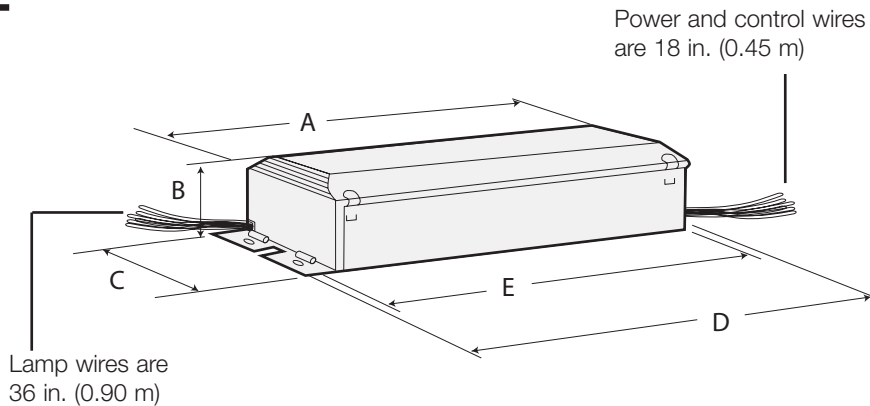
A<sup>1</sup>

A	4.20 in. (107 mm)
B	1.00 in. (25 mm)
C	3.00 in. (76 mm)
D	4.90 in. (124 mm)
E	4.60 in. (117 mm) (mounting centers)
F	2.00 in. (51 mm)
G	1.08 in. (27 mm)
H	1.60 in. (41 mm)
I	1.39 in. (35 mm)

B<sup>1</sup>

A	6.00 in. (152 mm)
B	1.00 in. (25 mm)
C	3.00 in. (76 mm)
D	6.75 in. (171 mm)
E	6.50 in. (165 mm) (mounting centers)
F	2.00 in. (51 mm)
G	1.00 in. (29 mm)
H	1.60 in. (41 mm)
I	1.39 in. (35 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).

<sup>1</sup> Mounting studs standard. When ordering, delete suffix -S in the ballast model number if mounting studs not needed.

Job Name:

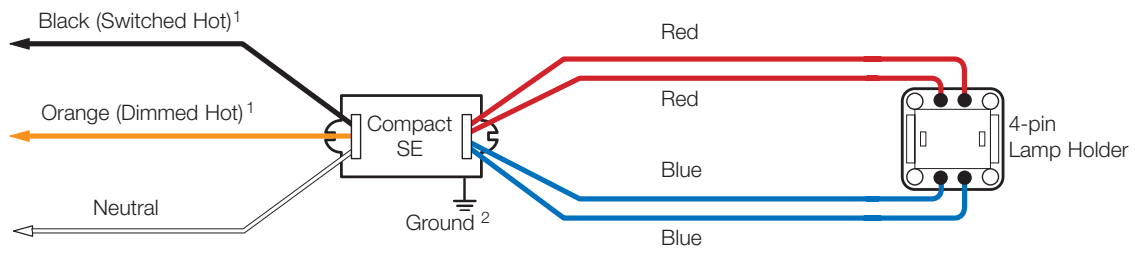
Model Numbers:

Job Number:

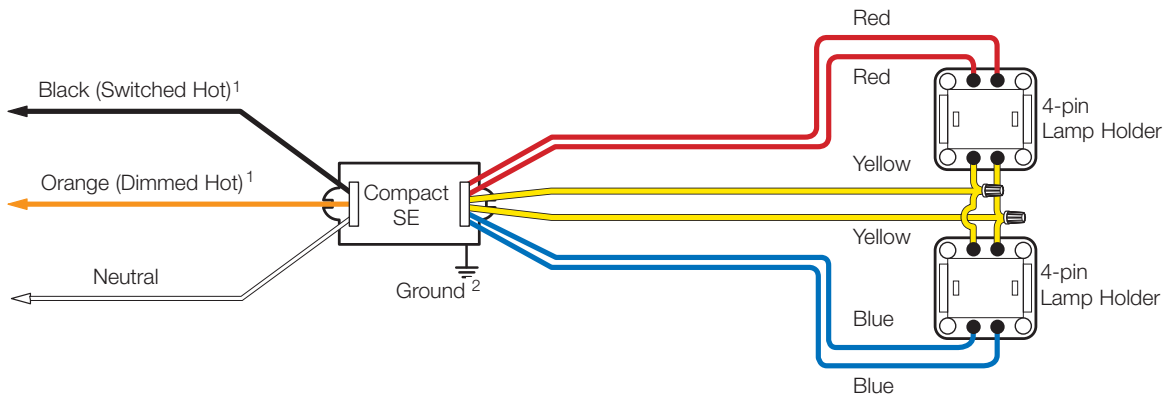


## Wiring Diagrams

### One compact fluorescent lamp



### Two compact fluorescent lamps



<sup>1</sup> 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 controls and ballasts only.

<sup>2</sup> Ballast and lighting fixture must be effectively grounded.

Note: For T4 compact lamps, maximum lamp-to-ballast wire length is 3 feet (1 m).

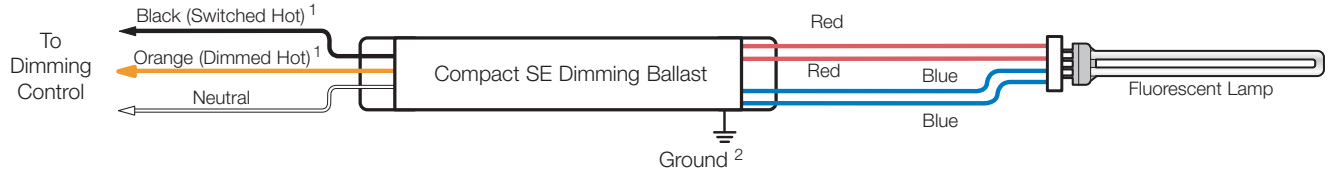
Job Name:

Model Numbers:

Job Number:

## Compact SE Wiring Diagrams

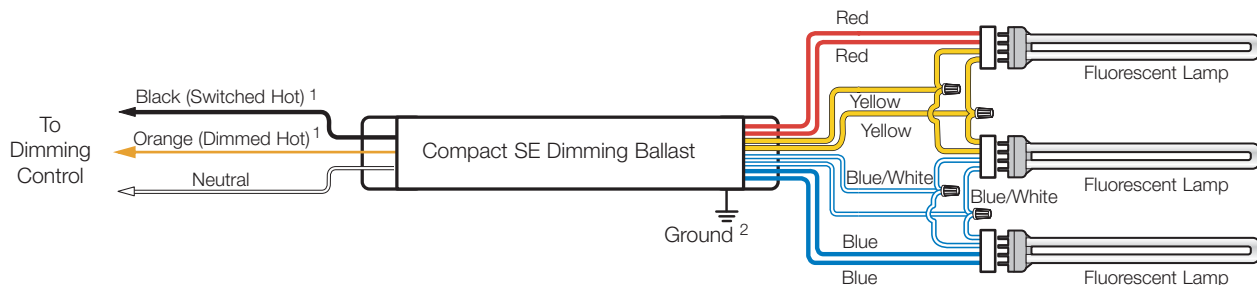
### One T5 twin-tube lamp



### Two T5 twin-tube lamps



### Three T5 twin-tube lamps



<sup>1</sup> 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.

<sup>2</sup> 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).

Job Name:

Model Numbers:

Job Number:



### ATTENTION ELECTRICIANS AND CONTRACTORS

#### Ballast/Socket Leads

Lead lengths from ballast to socket must not exceed 3 ft. (1 m) for T4 and T5 twin-tube lamps.

#### Lamp Sockets

Quality lamp sockets are required to ensure positive lamp-pin to socket contact. T4 compact sockets must be the 4 pin type, and must be used with 4 pin compact lamps. T5 twin-tube lamps require sockets that lock into the lamp base and provide proper lamp support to hold lamp pins in full contact with socket.

#### Lamp Mounting for T5 Twin-Tube

Many fluorescent lamp sockets are available with mounting slots to vary the height of the lamp away from the grounded metal surface. Use these slots to keep the outside edge of the lamp at least 1/4 in. away from the grounded metal surface.

Having a fluorescent lamp too close to the grounded metal will make the minimum intensity too low and will reduce lamp life.

#### Wiring and Grounding

All wiring from the dimming control to Compact SE ballasts is line voltage wiring and may be run together in the same conduit.

Ballast and lighting fixture must be effectively grounded. Ballasts must be installed per national and local electrical codes.

#### Number of Ballasts Per Control

To calculate the maximum number of ballasts allowed per control, divide control's current capacity by individual ballast current. Certain controls allow a specific maximum number of ballasts.

#### Ballast Operating Temperature

Ballast case temperature must not exceed 75 °C at any point on ballast.



### ATTENTION FACILITIES MANAGERS

#### PERFORMANCE

##### Lamps Must Be Seasoned

New fluorescent lamps must be operated for 100 hours at full output ("seasoned") to render lamp impurities inert, so as to achieve proper dimming performance and average rated lamp life.

#### SERVICE

##### Replacement Parts

Use replacement parts with exact Lutron model numbers. Consult Lutron if you have any questions.

##### Further Information

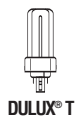
Ballasts for other lamp types and voltages are available. Consult Lutron's Fluorescent Dimming Systems Selection Guide (P/N 366-002).

For further information, please visit us at <http://www.lutron.com/ballasts> or contact our 24-hour Technical Support Center at 1-800-523-9466.

Job Name:

Model Numbers:

Job Number:



## DULUX® D/E 4-PIN ECOLOGIC® COMPACT FLUORESCENT LAMPS

for Dimming and Electronic Ballast. Lamps have End-of-lamp Life (EOL) Protection

Nominal Wattage	Bulb	MOL		Base	Product Number	Ordering Abbreviation	NEMA Generic Designation	Pkg Qty	Avg Rated Life (hrs)	CCT (K)	CRI	Approx Lumens @25°C/77°F		Symbols & Footnotes
		(in)	(mm)									Initial	Mean	
13	D (T4)	5.2	131	G24Q-1	20682	<b>CF13DD/E/827/ECO</b>	CFQ13W/G24Q/827	50	12000	2700	82	900	774	1,2,5,6, 7,12,20
					20721	<b>CF13DD/E/830/ECO</b>	CFQ13W/G24Q/830	50	12000	3000	82	900	774	1,2,5,6, 7,12,20
					20671	<b>CF13DD/E/835/ECO</b>	CFQ13W/G24Q/835	50	12000	3500	82	900	774	1,2,5,6, 7,12,20
					20667	<b>CF13DD/E/841/ECO</b>	CFQ13W/G24Q/841	50	12000	4100	82	900	774	1,2,5,6, 7,12,20
18	D (T4)	5.8	147	G24Q-2	20683	<b>CF18DD/E/827/ECO</b>	CFQ18W/G24Q/827	50	12000	2700	82	1150	989	1,2,5,6, 7,12,20
					20724	<b>CF18DD/E/830/ECO</b>	CFQ18W/G24Q/830	50	12000	3000	82	1150	989	1,2,5,6, 7,12,20
					20672	<b>CF18DD/E/835/ECO</b>	CFQ18W/G24Q/835	50	12000	3500	82	1150	989	1,2,5,6, 7,12,20
					20668	<b>CF18DD/E/841/ECO</b>	CFQ18W/G24Q/841	50	12000	4100	82	1150	989	1,2,5,6, 7,12,20
26	D (T4)	6.5	166	G24Q-3	20684	<b>CF26DD/E/827/ECO</b>	CFQ26W/G24Q/827	50	12000	2700	82	1710	1470	1,2,5,6, 7,12,20
					20722	<b>CF26DD/E/830/ECO</b>	CFQ26W/G24Q/830	50	12000	3000	82	1710	1470	1,2,5,6, 7,12,20
					20673	<b>CF26DD/E/835/ECO</b>	CFQ26W/G24Q/835	50	12000	3500	82	1710	1470	1,2,5,6, 7,12,20
					20669	<b>CF26DD/E/841/ECO</b>	CFQ26W/G24Q/841	50	12000	4100	82	1710	1470	1,2,5,6, 7,12,20

## DULUX T PREHEAT 2-PIN ECOLOGIC® COMPACT FLUORESCENT LAMPS

With starter in Lamp Base for Magnetic Ballast

Nominal Wattage	Bulb	MOL		Base	Product Number	Ordering Abbreviation	NEMA Generic Designation	Pkg Qty	Avg Rated Life (hrs)	CCT (K)	CRI	Approx Lumens @25°C/77°F		Symbols & Footnotes
		(in)	(mm)									Initial	Mean	
18	T (T4)	4.8	123	GX24D-2	20756	<b>CF18DT/827/ECO</b>	CFTR18W/GX24D/827	50	12000	2700	82	1200	1032	1,4,6,11, 12,20,22
26	T (T4)	5.4	138	GX24D-3	20752	<b>CF26DT/827/ECO</b>	CFTR26W/GX24D/827	50	12000	2700	82	1800	1548	1,4,6,11, 12,20,22

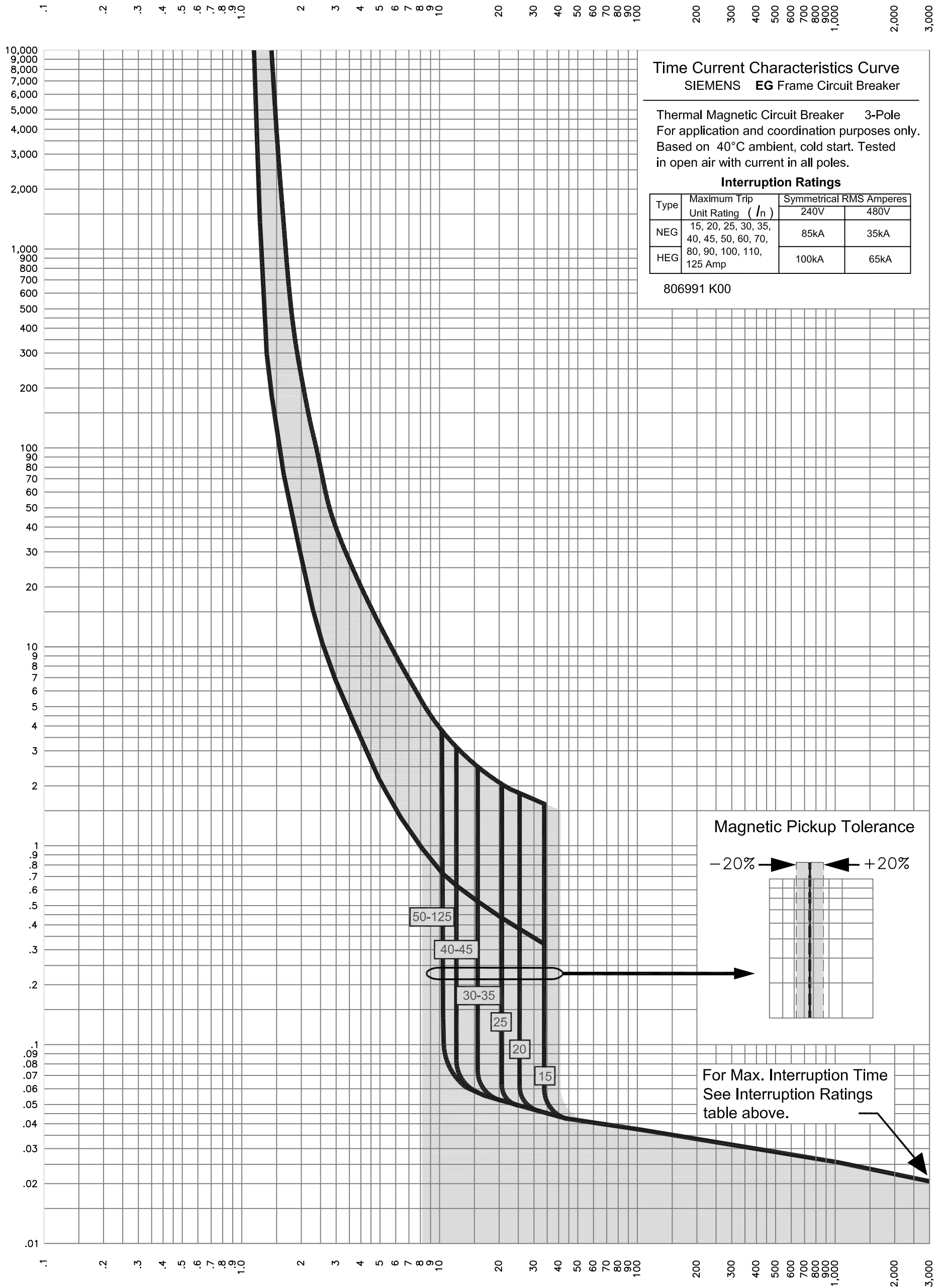
## DULUX T/E 4-PIN ECOLOGIC® COMPACT FLUORESCENT LAMPS

For dimming and electronic ballast. Lamps have End-of-Lamp Life (EOL) Protection

Nominal Wattage	Bulb	MOL		Base	Product Number	Ordering Abbreviation	NEMA Generic Designation	Pkg Qty	Avg Rated Life (hrs)	CCT (K)	CRI	Approx Lumens @25°C/77°F		Symbols & Footnotes
		(in)	(mm)									Initial	Mean	
13	T (T4)	4.2	106	GX24Q-1	20891	<b>CF13DT/E/827/ECO</b>	CFTR13W/GX24Q/827	50	12000	2700	82	900	774	1,2,5,6, 7,12,20
					20892	<b>CF13DT/E/830/ECO</b>	CFTR13W/GX24Q/830	50	12000	3000	82	900	774	1,2,5,6, 7,12,20
					20893	<b>CF13DT/E/835/ECO</b>	CFTR13W/GX24Q/835	50	12000	3500	82	900	774	1,2,5,6, 7,12,20
					20894	<b>CF13DT/E/841/ECO</b>	CFTR13W/GX24Q/841	50	12000	4100	82	900	774	1,2,5,6, 7,12,20
18	T (T4)	4.6	116	GX24Q-2	20760	<b>CF18DT/E/827/ECO</b>	CFTR18W/GX24Q/827	50	12000	2700	82	1200	1032	1,2,5,6, 7,12,20

COMPACT FLUORESCENT

t [s] ↑



**Time Current Characteristics Curve**  
SIEMENS EG Frame Circuit Breaker

Thermal Magnetic Circuit Breaker 3-Pole  
For application and coordination purposes only.  
Based on 40°C ambient, cold start. Tested in open air with current in all poles.

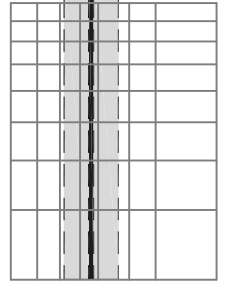
**Interruption Ratings**

Type	Maximum Trip Unit Rating ( $I_n$ )	Symmetrical RMS Amperes	
		240V	480V
NEG	15, 20, 25, 30, 35, 40, 45, 50, 60, 70, 80, 90, 100, 110, 125 Amp	85kA	35kA
HEG		100kA	65kA

806991 K00

Magnetic Pickup Tolerance

-20% → ← +20%



For Max. Interruption Time See Interruption Ratings table above.

$x I_n$  →

# Types NEB/HEB Circuit Breakers

## EG Frame, Low-tab version for panelboard mounting

Approvals: UL, CSA, IEC, CE Marked

### Ratings and Markings

Pole	Current Range (A)	HACR Rated	SWD ① Marked	HID Marked
1, 2, 3	15 – 125	15 – 125A	15 – 20A	15 – 50A

① SWD rating for 1 pole units only.

### Shipping Weight:

1.4 lbs. / 0.5 kgs.	1 Pole
2.4 lb. / 0.9 kgs.	2 Poles
3.7 lbs. / 1.4 kgs.	3 Poles

### Terminal Connectors

#### Lug Information

Breaker Amp Rating (A)	Wire Size (AWG)	Torque (lb.-in.)	Connector Material	Connector Kit Catalog No.	
15 – 125	14 – 10 AWG	35	Steel (Cu wire only)	<b>3TW1EG30 (kit of 3)</b>	
	8 AWG	40			
	6 – 4 AWG	45			
	15 – 125	3 – 3/0 AWG	50	Aluminum (Cu/Al wire)	<b>3TA1EG10 (kit of 3)</b>
		14 – 10 AWG	35		
		8 AWG	40		
		6 – 4 AWG	45		
		3 – 1/0 AWG	50		
		6 – 2 AWG	80		
1 – 3/0 AWG	80	Aluminum (Cu/Al wire)	<b>3TA1EG30 (kit of 3)</b>		

60/75° C wire



### Interrupting Ratings (max. RMS symmetrical amperes kA)

Breaker Type	Poles	UL489/CSA Volts AC						IEC 60947-2 (Ics = 50% Icu)			
		120	240	277	347	480	600Y/347	125/250	240	415	250
NEB	1	100	85	35	22	—	—	35	85	—	35
	2, 3	—	85	—	—	35	22	35	85	40	35
HEB	1	200	100	65	25	—	—	42	100	—	42
	2, 3	—	100	—	—	65	25	42	100	70	42

40°C, 50/60Hz

### Ordering Information

#### Type EG – 1, 2, and 3 Pole Circuit Breakers

Ampere Rating I <sub>n</sub>	NEB Catalog Number Panelboard Mounting	HEB Catalog Number Panelboard Mounting
15	NEB__B015B	HEB__B015B
20	NEB__B020B	HEB__B020B
25	NEB__B025B	HEB__B025B
30	NEB__B030B	HEB__B030B
35	NEB__B035B	HEB__B035B
40	NEB__B040B	HEB__B040B
45	NEB__B045B	HEB__B045B
50	NEB__B050B	HEB__B050B
60	NEB__B060B	HEB__B060B
70	NEB__B070B	HEB__B070B
80	NEB__B080B	HEB__B080B
90	NEB__B090B	HEB__B090B
100	NEB__B0100B	HEB__B100B
110	NEB__B0110B	HEB__B0110B
125	NEB__B0125B	HEB__B0125B



② "B" Suffix indicates standard terminal lugs TA1EG10 (15 – 100A) and TA1EG30 (110 – 125A) are factory installed on load end.

# Types NEB/HEB Circuit Breakers

## EG Frame, Low-tab version for panelboard mounting

### Shunt Trip

Control Voltage Range		
AC	DC	Catalog Number
24 – 60	24 – 60	<b>STREM60D</b>
110 – 240	—	<b>STRER240</b>
380 – 600	—	<b>STREV600</b>

### Alarm Switch

Description	Catalog Number
Single Alarm Switch 1A – 1B Contacts	<b>ASKE1</b>
Double Alarm Switch 2A – 2B Contacts	<b>ASKE5</b>
Combination Auxiliary Switch & Alarm Switch (1A – 1B each)	<b>ASKE6</b>

### Auxiliary Switch

Description	Catalog Number
Single Auxiliary Switch 1A – 1B Contacts	<b>ASKE2</b>
Double Auxiliary Switch 2A – 2B Contacts	<b>ASKE3</b>

### Auxiliary/Alarm Switch Ratings

AC	DC
6A at 230VAC	6A at 24VDC
3A at 400VAC	0.5A at 125VDC
0.25A at 600VAC	0.25A at 250VDC

### Undervoltage Release

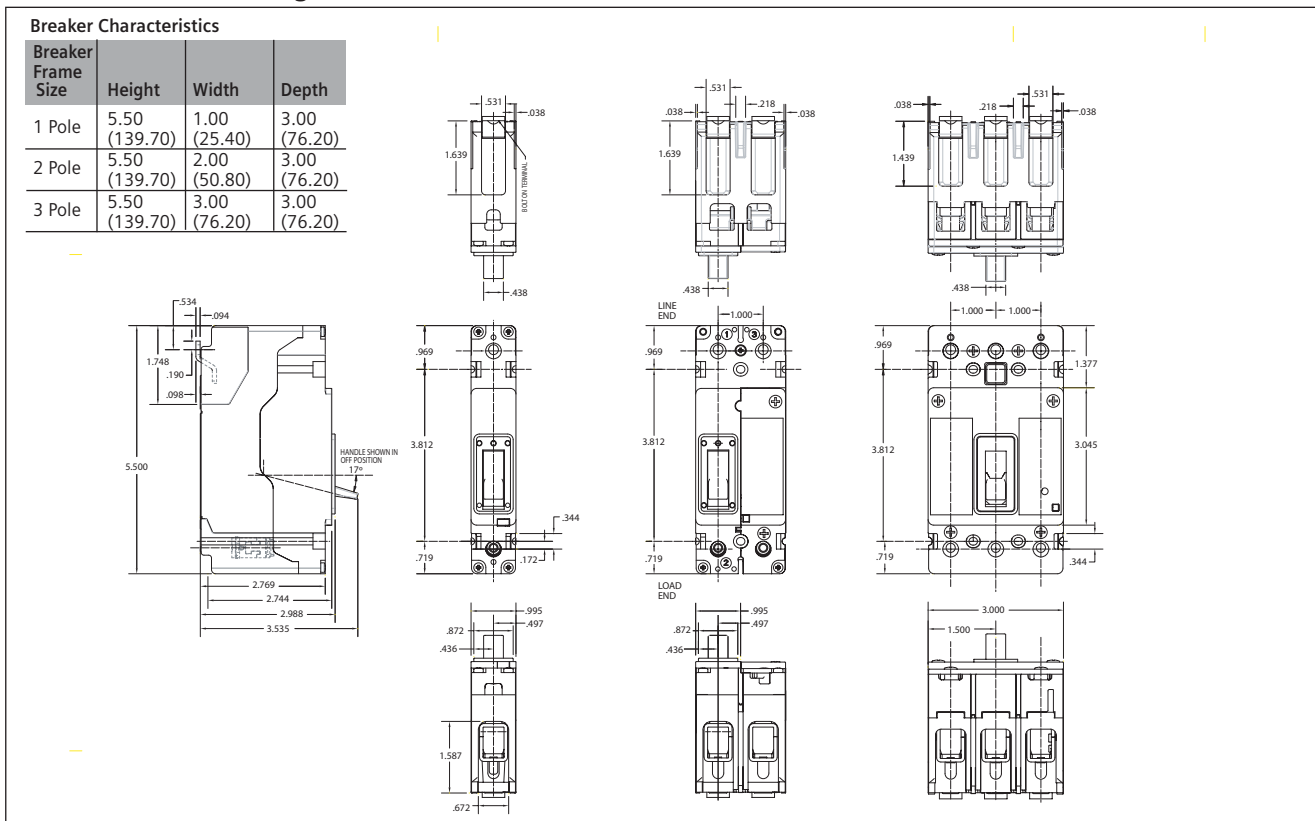
Control Voltage Range		
AC	DC	Catalog Number
24	24	<b>UVREB24AD</b>
48 – 60	—	<b>UVREM60</b>
110 – 127	—	<b>UVREN120</b>
208 – 240	—	<b>UVRER240</b>
380 – 500	—	<b>UVREU480</b>
525 – 600	—	<b>UVREV600</b>
—	48 – 60	<b>UVREC48D</b>
—	110 – 125	<b>UVRED125D</b>
—	220 – 250	<b>UVREE250D</b>

### Available Accessory Combinations

Left Accessory Pocket	Right Accessory Pocket	
Shunt Trip or UVR	Auxiliary Switch Contacts	Alarm Contacts
Maximum 1 Shunt Trip or UVR	1A – 1B	0
	2A – 2B	0
	0	1A – 1B
	0	2A – 2B
	1A – 1B	1A – 1B

Shunt Trip, Undervoltage Release, Auxiliary Switches, and Alarm Switches are internal accessories contained within a field installable module for the EG/EB circuit breakers. A Shunt Trip or UVR can only be installed in the left accessory pocket (for 3-pole breakers). The Auxiliary Switches and/or Alarm Switch can only be installed in the right accessory pocket (for 2-pole and 3-pole breakers).

### EB Frame Outline Drawing – 1, 2 and 3 Pole





# VL Information Guide

## VL Circuit Breaker – LG 600A Frame



### Breaker Type

Defined by the 3rd character of the catalog number

- G – Global (UL, IEC, CE)
- H – Global, 100% Rated
- X – Global, Non-interchangeable
- Y – Global, 100% Rated, Non-interchangeable

### Trip Unit Type

Defined by the 5th character of the catalog number

- B – Thermal-Magnetic, Model 525
- N – LI, Electronic, Model 545
- P – LSI, Electronic, Model 545
- X – LIG, Electronic, Model 545
- U – LSIG, Electronic, Model 545
- D – LSI, Electronic with LCD, Model 576
- E – LSIG, Electronic with LCD, Model 576

### Interrupting Ratings

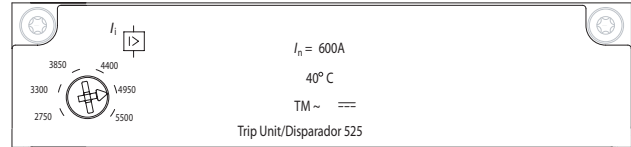
Breaker Type	RMS Symmetrical Amperes (kA)								
	UL 489			IEC 60947-2			UL or IEC		
	Volts AC			Volts AC			Volts DC*		
	240	480	600	240	415	690	250	500	
				$I_{cu} / I_{cs}$	$I_{cu} / I_{cs}$	$I_{cu} / I_{cs}$			
NLG	65	35	25	65 / 65	45 / 45	12 / 6	30	25	
HLG	100	65	25	100 / 75	70 / 70	15 / 8	30	35	
LLG	200	100	25	200 / 150	100 / 75	15 / 8	30	35	

UL / CSA / NOM 40°C 50/60Hz IEC 40°C 50/60Hz

\*DC applications: For 250VDC, use a 2-pole breaker. For 500-600VDC, wire as shown in Figure 1.

### Thermal Magnetic Trip Units, Model 525

$I_n$ – Trip Unit Rating (Amps)	$I_i$ – Nominal Instantaneous Trip Adjustable Range (Amps)					
400	2000	2400	2800	3200	3600	4000
500	2500	3000	3500	4000	4500	5000
600	2750	3300	3850	4400	4950	5500



Trip Unit Model 525

### Trip Unit Settings

#### Electronic Trip Units, Model 545 with LI, LIN, LIG, or LIGN Trip Functions

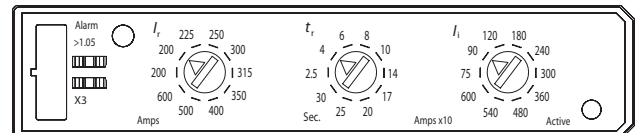
$I_n$ – Trip Unit Rating (Amps)	$I_r$ – Continuous Amp Settings (Amps)									
400	150	160	175	200	225	250	300	315	350	400
600	200	200	225	250	300	315	350	400	500	600

$I_n$ – Trip Unit Rating (Amps)	$t_r$ – Long Time Delay Settings (Seconds) $I^2t @ 6 \times I_r$									
400, 600	2.5	4	6	8	10	14	17	20	25	30

$I_n$ – Trip Unit Rating (Amps)	$I_i$ – Nominal Instantaneous Trip Settings (Amps)									
400	500	600	800	1200	1600	2000	2400	3200	4000	4400
600	750	900	1200	1800	2400	3000	3600	4800	5400	6000

### Fixed Settings

$I_n$ – Trip Unit Rating	$I_g$ – Ground Fault Pickup (Amps)	$t_g$ – Ground Fault Delay	$I_N$ – Neutral Protection Pick-up
400	320 A	.11 sec	200 A
600	360 A	.18 sec	300 A



Trip Unit Model 545, with LI Trip Functions

# VL Information Guide

## VL Circuit Breaker – LG 600A Frame

### Trip Unit Settings

#### Electronic Trip Units, Model 545 with LSI, LSIN, LSIG, or LSIGN Trip Functions

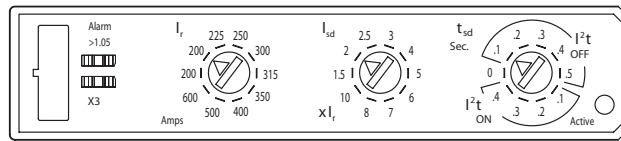
$I_n$ – Trip Unit Rating (Amps)	$I_r$ – Continuous Amp Settings (Amps)									
400	150	160	175	200	225	250	300	315	350	400
600	200	200	225	250	300	315	350	400	500	600

$I_n$ – Trip Unit Rating (Amps)	$I_{sd}$ – Short Time Pick-up Settings (Amps) x $I_r$									
400, 600	1.5	2	2.5	3	4	5	6	7	8	9

$I_n$ – Trip Unit Rating (Amps)	$t_{sd}$ – Short Time Delay Settings (Seconds) @ $8xI_r$									
400, 600	0	.1, $I^2t$ OFF	.2, $I^2t$ OFF	.3, $I^2t$ OFF	.4, $I^2t$ OFF	.5, $I^2t$ OFF	.1, $I^2t$ ON	.2, $I^2t$ ON	.3, $I^2t$ ON	.4, $I^2t$ ON



Trip Unit Model 545, with LSIG Trip Functions

### Fixed Settings

$I_n$ – Trip Unit Rating (Amps)	$t_r$ – Long Time Delay	$I_i$ – Nominal Instantaneous Trip	$I_g$ – Ground Fault Pick-up	$t_g$ – Ground Fault Delay	$I_N$ – Neutral Protection Pick-up
400	10 sec ( $I^2t$ @ $6 \times I_r$ )	4400 A	320 A	.11 sec	200 A
600		6000 A	360 A	.18 sec	300 A

### Trip Unit Settings

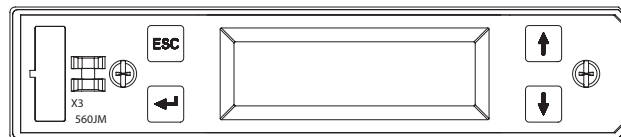
#### Electronic Trip Units with LCD, Model 576 with LSI or LSIG Trip Functions

$I_n$ – Trip Unit Rating (Amps)	$I_r$ – Continuous Amps Range	$t_r$ – Long Time Delay Settings ( $I^2t$ @ $6 \times I_r$ )	$I_{sd}$ – Short Time Pick-up Range	$t_{sd}$ – Short Time Delay Settings	$I_i$ – Nominal Instantaneous Trip Range
400	160 – 400 A	2.5, 4, 6, 8, 10, 14,	1.25 - $10 \times I_r$	.1, .2, .3, .4, .5 sec.	500 – 4400 A
600	200 – 600 A	17, 20, 25, 30 sec.	(5,400 A max.)	or $I^2t$ @ $8 \times I_r$	750 – 6000 A

$I_n$ – Trip Unit Rating (Amps)	$I_g$ – Ground Fault Pick-up Range	$t_g$ – Ground Fault Delay Settings	$I_N$ – Neutral Protection Pick-up	Pre-Alarm Indication
400	160 – 150 A	.1, .2, .3, .4, .5 sec. or $I^2t$ @ $.5 \times I_n$	50 – 100% x $I_r$ (Amps)	80 – 100% x $I_r$ (Amps)
600	240 – 600 A			

Current settings are adjustable in 1-amp increments except Neutral Protection which is adjustable in increments of 5%.



Trip Unit Model 576

### Molded Case Switch

Amp Rating	Self-protective Instantaneous Override
600	5500A

# VL Information Guide

## VL Circuit Breaker – LG 600A Frame

### Terminal Connectors

Wire Range	Cables per Connectors	Torque	lb-in. (Nm)	Catalog Number
#2 – 600 kcmil	2 (Cu / Al)	#1 – 600	375 (42.37)	<b>3TA2LG600LN (Line end only)</b> ① ② ④
#2 – 600 kcmil	2 (Cu / Au)	#1 – 600	375 (42.37)	<b>3TA2LG600LD (Load end only)</b> ① ② ④
Cu: 3/0 – 600	2 (Cu only)	300 – 750	500 (56.69)	<b>3TA1JG750 (400A max.)</b> ②
Al: 250 – 750 kcmil	1 (Cu / Al)	3/0 – 250	275 (31.07)	
#2 – 600 kcmil	2 (Cu only)	300 – 750	500 (56.49)	<b>3TC2LG600LN (Line end only)</b> ② ④
#2 – 600 kcmil	2 (Cu only)	#1 – 600	375 (42.37)	<b>3TC2LG600LD (Load end only)</b> ② ④
<b>Compression Lug Kits</b>				
#6 – 350 kcmil	2 (Cu / Al)			<b>6CLL350</b> ③
250 – 750 kcmil	1 (Cu / Al)			<b>3CLL750</b> ②
250 – 600 kcmil	2 (Cu / Al)			<b>6CLL600</b> ③

① Standard connector when an “L” suffix is used on an assembled breaker catalog number.

② Packaged as 3 connectors.

③ Packaged as 6 connectors (2 connectors per phase).

④ Includes extended length terminal cover - see dimensions on drawing.

⑤ Up to 400A applications only.

### Internal Accessories

#### Auxiliary and Alarm Switch Kits

Description	Mounting Pocket	Catalog Number
1 Alarm Switch 1A/B ① Bases AMBL2 and AMBL3	Left, Right ②	<b>ASKL1</b>
2 Aux. Switches 1A + 1B Base AMBL1	Left, Right	<b>ASKL2</b>
2 Aux. + 1 Alarm Switch 1A + 1B, 1A/B Bases ① AMBL2 and AMBL3	Left, Right ②	<b>ASKL3</b>

① Includes 1A and 1B contact for alarm purposes, only one of which may be installed at any time.

② Kit includes 2 bases. One for mounting switches in left pocket and another for mounting in the right.

#### Auxiliary and Alarm Switch Mounting Base only

Description	Mounting Pocket	Catalog Number
For 2 Aux + 1 Alarm	Left	<b>AMBL2</b>
For 2 Aux + 1 Alarm	Right	<b>AMBL3</b>
For 3 Aux	Left, Right	<b>AMBL1</b>

#### Shunt Trip

Control Voltage	Catalog Number
48 – 60 VAC	<b>STRLM60</b>
110 – 127 VAC	<b>STRLN120</b>
208 – 277 VAC	<b>STRLS277</b>
380 – 600 VAC	<b>STRLV600</b>
24 VDC	<b>STRLB24DC</b>
48 – 60 VDC	<b>STRLC60DC</b>
110 – 127 VDC	<b>STRLD125DC</b>
220 – 250 VDC	<b>STRLE250DC</b>

Shunt trips or UVR's may be mounted in the Right Pocket only.

#### Internal Accessory Locations

Left Accessory Pocket	Right Accessory Pocket
Up to 3 Auxiliary Switches	Shunt Trip or UVR or Up to 3 Auxiliary Switches
Up to 2 Auxiliary Switches + 1 Alarm Switch	Shunt Trip or UVR or Up to 2 Auxiliary Switches + 1 Alarm Switch

Maximum Accessories: Maximum of 6 switches total.  
Maximum of 2 alarm switches, 1 Left + 1 Right Pocket.

#### Auxiliary / Alarm Switches only (requires a base)

Description	Catalog Number
1 NO (normally open contact) 1A	<b>ASWPA</b>
1 NC (normally closed contact) 1B	<b>ASWPB</b>

(A) Normally open contacts are open when the breaker contacts are open.

(B) Normally closed contacts are closed when the breaker contacts are open.

#### Undervoltage Release

Control Voltage	Catalog Number
110 – 127 VAC	<b>UVRLN120</b>
220 – 250 VAC	<b>UVRLR240</b>
208 VAC	<b>UVRLP208</b>
277 VAC	<b>UVRLS277</b>
380 – 425 VAC	<b>UVRLT415</b>
440 – 480 VAC	<b>UVRLU480</b>
600 VAC	<b>UVRLV600</b>
24 VDC	<b>UVRLB24DC</b>
48 VDC	<b>UVRLC48DC</b>
60 VDC	<b>UVRLG60DC</b>
110 – 127 VDC	<b>UVRLD125DC</b>
220 – 250 VDC	<b>UVRLE250DC</b>

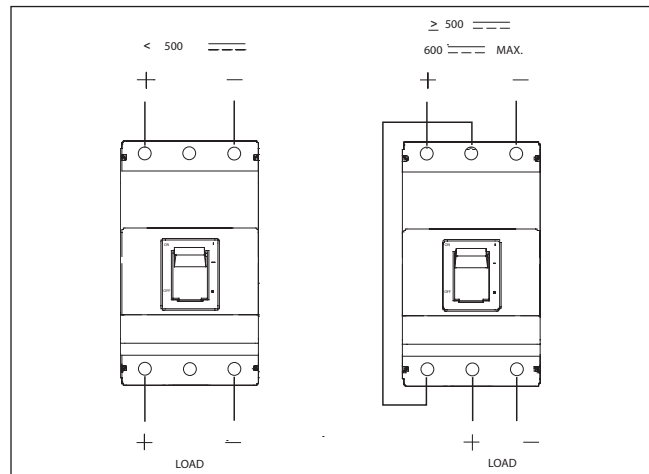


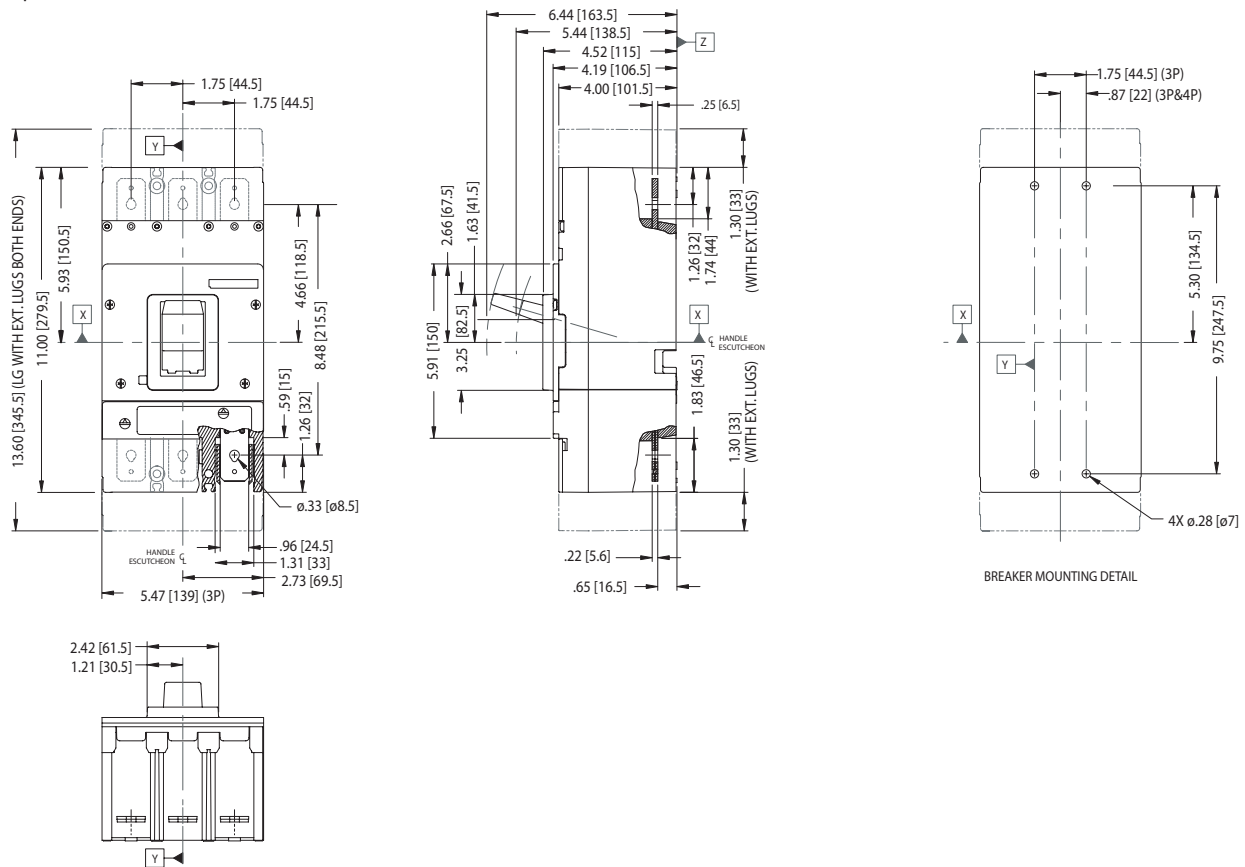
Figure 1

# VL Information Guide

## VL Circuit Breaker – LG 600A Frame

### Dimensions

(complete breaker)



### Shipping Weight, lbs. (kg)

Poles	Frame Only	Trip Unit		Complete T/M Breaker
		Thermal-mag	Electronic	
2, 3	33 (15)	4.0 (1.8)	5 (2)	37 (17)

### Permissible Mounting Positions

