PENTRON® & PENTRON HO ECOLOGIC®

High Output T5 Linear Fluorescent Lamps



SYLVANIA PENTRON and PENTRON HO ECO — A new product line of slender, 5/8" diameter, T5 linear fluorescent lamps with improved system performance characteristics compared to T8 & T12 technology.

Engineered with thermal characteristics which provide improved lumen output in luminaires. 93% lumen maintenance assures light levels remain high over the long life. PENTRON ECO brings increased design opportunities for unique, highly efficient, low profile lighting.

Key Features & Benefits

- High Performance T5 lamps
  - 104 LPW max. for PENTRON ECO
  - 94 LPW max. for PENTRON HO ECO
  - Designed for high frequency electronic ballasts
- Passes Federal TCLP test*
- Nominal 2', 3', 4', and 5'
  - Approx. 2" shorter than T8 lengths
- Miniature Bi-Pin base
- 3000K, 3500K, 4100K, 5000K, 6500K, 85 CRI
- 93% lumen maintenance
- FP54 average rated life increased:
  - 40,000 hrs. @12 hours/start
  - 30,000 hrs. @3 hours/start
  - all others rated for 25,000 hrs. @3 hours/start
- Greater luminaire design flexibility
- Peak lumen output at 35°C (95°F)

ECOLOGIC® is a comprehensive program of OSRAM SYLVANIA focused on addressing environmental issues at all stages of lamp life.

* Regulations may vary. Check your local & state regulations.

ECOLOGIC®

Product Offering

Wattage		Lamp Length	
PENTRON	PENTRON HO	Nominal	MOL
14	24	2ft	563.2 mm (22.17")
21	39	3ft	863.2 mm (33.89")
28	54	4ft	1163.2 mm (45.80")
35	80	5ft	1463.2 mm (57.61")

Application Information

Applications

- Cove and valance
- Indirect lighting
- Low profile surface mount
- Shallow recessed fixtures
- Showcase lighting
- Sign lighting
- Any place controlled, high-efficiency light is desired

Application Notes

1. PENTRON and PENTRON HO ECO lamps are about 2" shorter than T8 & T12 Bi-Pin lamps.
2. Miniature Bi-Pin bases will not install into T8 & T12 sockets.
3. Miniature Bi-Pin bases require UL Listed 600 Volt rated sockets.
4. Requires high frequency programmed rapid start electronic ballasts for T5s equipped with end-of-life sensing circuit.
5. PENTRON ECO (not PENTRON HO ECO) operates at same current for uniform color and brightness between nominal 2', 3', 4', and 5' lengths.
6. Apply thermal factor in calculations for use in exterior or unheated applications.

Specification Data

Catalog # Type

Project

Comments

Prepared by Date

Ordering Information

PENTRON®

Item Number	Ordering Abbreviation	Base	Watts	Initial Lumens @25°C	Initial Lumens @35°C	Bulb	MOL (mm)	Average Rated Life (hrs.)*	Color Temp	CRI
20907	FP14/830/ECO	Miniature Bi-Pin	14	1,200	1,350	T5	563.2	20,000	3000K	85
20908	FP14/835/ECO	Miniature Bi-Pin	14	1,200	1,350	T5	563.2	20,000	3500K	85
20914	FP14/841/ECO	Miniature Bi-Pin	14	1,200	1,350	T5	563.2	20,000	4100K	85
20988	FP14/865/ECO	Miniature Bi-Pin	14	1,100	1,300	T5	563.2	20,000	6500K	85
20919	FP21/830/ECO	Miniature Bi-Pin	21	1,900	2,100	T5	863.2	20,000	3000K	85
20921	FP21/835/ECO	Miniature Bi-Pin	21	1,900	2,100	T5	863.2	20,000	3500K	85
20924	FP21/841/ECO	Miniature Bi-Pin	21	1,900	2,100	T5	863.2	20,000	4100K	85
20989	FP21/865/ECO	Miniature Bi-Pin	21	1,750	2,000	T5	863.2	20,000	6500K	85
20868	FP28/830/ECO	Miniature Bi-Pin	28	2,600	2,900	T5	1,163.2	25,000	3000K	85
20901	FP28/835/ECO	Miniature Bi-Pin	28	2,600	2,900	T5	1,163.2	25,000	3500K	85
20902	FP28/841/ECO	Miniature Bi-Pin	28	2,600	2,900	T5	1,163.2	25,000	4100K	85
22203	FP28/850/ECO	Miniature Bi-Pin	28	2,545	2,840	T5	1,163.2	25,000	5000K	85
20990	FP28/865/ECO	Miniature Bi-Pin	28	2,400	2,750	T5	1,163.2	25,000	6500K	85
20925	FP35/830/ECO	Miniature Bi-Pin	35	3,300	3,650	T5	1,463.2	20,000	3000K	85
20926	FP35/835/ECO	Miniature Bi-Pin	35	3,300	3,650	T5	1,463.2	20,000	3500K	85
20927	FP35/841/ECO	Miniature Bi-Pin	35	3,300	3,650	T5	1,463.2	20,000	4100K	85

*Based on 3 hrs. per start on electronic programmed start.

PENTRON HO

Item Number	Ordering Abbreviation	Base	Watts	Initial Lumens @25°C	Initial Lumens @35°C	Bulb	MOL (mm)	Average Rated Life (hrs.)*	Color Temp	CRI
20928	FP24/830/HO/ECO	Miniature Bi-Pin	24	1,750	2,000	T5	563.2	25,000	3000K	85
20929	FP24/835/HO/ECO	Miniature Bi-Pin	24	1,750	2,000	T5	563.2	25,000	3500K	85
20931	FP24/841/HO/ECO	Miniature Bi-Pin	24	1,750	2,000	T5	563.2	25,000	4100K	85
20932	FP39/830/HO/ECO	Miniature Bi-Pin	39	3,100	3,500	T5	863.2	25,000	3000K	85
20933	FP39/835/HO/ECO	Miniature Bi-Pin	39	3,100	3,500	T5	863.2	25,000	3500K	85
20934	FP39/841/HO/ECO	Miniature Bi-Pin	39	3,100	3,500	T5	863.2	25,000	4100K	85
20903	FP54/830/HO/ECO	Miniature Bi-Pin	54	4,450	5,000	T5	1,163.2	30,000[1]	3000K	85
20904	FP54/835/HO/ECO	Miniature Bi-Pin	54	4,450	5,000	T5	1,163.2	30,000[1]	3500K	85
20906	FP54/841/HO/ECO	Miniature Bi-Pin	54	4,450	5,000	T5	1,163.2	30,000[1]	4100K	85
20949	FP54/850/HO/ECO	Miniature Bi-Pin	54	4,360	4,900	T5	1,163.2	30,000[1]	5000K	85
20862	FP54/865/HO/ECO	Miniature Bi-Pin	54	4,050	4,750	T5	1,163.2	30,000[1]	6500K	85
20935	FP80/830/HO/ECO	Miniature Bi-Pin	80	6,150	7,000	T5	1,463.2	25,000	3000K	85
20936	FP80/835/HO/ECO	Miniature Bi-Pin	80	6,150	7,000	T5	1,463.2	25,000	3500K	85
20937	FP80/841/HO/ECO	Miniature Bi-Pin	80	6,150	7,000	T5	1,463.2	25,000	4100K	85

*Based on 3 hrs. per start on electronic programmed rapid start.

1. Average life for FP54 lamps at 12 hrs. per start on electronic programmed rapid start ballasts is 40,000 hrs.

Ordering Guide

PENTRON® FP28/830

FP	28	/	8	30	/	ECO®
Fluorescent PENTRON T5	Wattage: 14, 21, 28 or 35 watts		8 = 85 CRI	30 = 3000K CCT 35 = 3500K CCT, 41 = 4100K CCT 50 = 5000K CCT, 65 = 6500K CCT		ECOLOGIC®

PENTRON HO FP80/830/HO

FP	80	/	8	30	/	HO	/	ECO
Fluorescent PENTRON T5 HO	Wattage: 24, 39, 54 or 80 watts		8 = 85 CRI	30 = 3000K CCT 35 = 3500K CCT, 41 = 4100K CCT 50 = 5000K CCT, 65 = 6500K CCT		High Output		ECOLOGIC

System Comparison*

T12/SS vs. OCTRON® T8 vs. PENTRON ECO T5

Lamp	Lamp Type	# Lamps	Ballast	BF	System Watts	Initial System Lumens	Lumen Maint.	Mean System Lumens	Relative Light Output	Mean System LPW
F40T12CW/SS	T12	2	Magnetic	0.88	72	4,660	0.85	3,960	100%	55
FO32/841	T8	2	System 32	0.90	59	5,310	0.92	4,890	123%	83
FP28/841	T5	2	System PS	1.0	62	5,200	0.93	4,836	122%	78
FP54/841/HO/ECO	T5	1	System PHO	1.0	61	4,450	0.93	4,140	105%	68

T12/SS vs. OCTRON T8 vs. PENTRON ECO T5

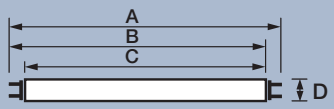
Lamp	Lamp Type	# Lamps	Ballast	BF	System Watts	Initial System Lumens	Lumen Maint.	Mean System Lumens	Relative Light Output	Mean System LPW
F96T12/CW/HO/SS	T12	1	Magnetic	0.94	122	7,520	0.82	6,170	100%	51
FO96/841	T8	1	System 59	1.13	70	6,670	0.92	6,140	100%	88
FP80/841/HO/ECO	T5	1	System PHO	1.0	89	6,150	0.93	5,720	93%	64

* Comparison at 25°C.

For complete energy saving system details, refer to our OSRAM SYLVANIA “BALLAST TECHNOLOGY & SPECIFICATION GUIDE” on www.sylvania.com.

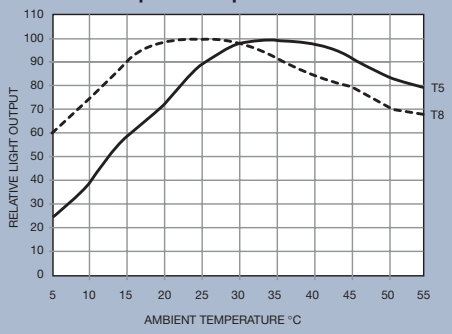
Technical Information

Dimensions



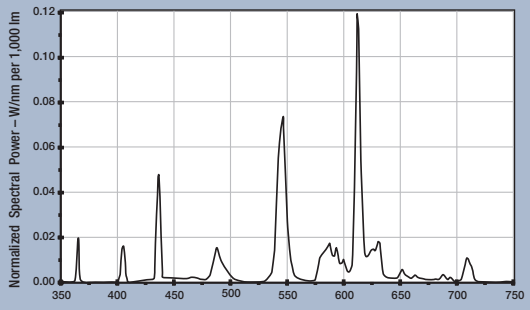
Ordering Abbreviation	(A) Max. Overall Overall Length mm (in.)	(B) Base Face to Opposite Pin mm (in.)	(C) Base Face to Base Face mm (in.)	(D) Max. Outside Diameter mm (in.)
FP14 & FP24/HO	563.2 (22.17)	553.7 - 556.1 (21.80 - 21.89)	547.1 - 549.0 (21.54 - 21.61)	17.0 (0.67)
FP21 & FP39/HO	863.2 (33.89)	853.7 - 856.1 (33.61 - 33.70)	847.1 - 849.0 (33.35 - 33.43)	17.0 (0.67)
FP28 & FP54/HO	1163.2 (45.80)	1153.7 - 1156.1 (45.42 - 45.52)	1147.1 - 1149.0 (45.16 - 45.24)	17.0 (0.67)
FP35 & FP80/HO	1463.2 (57.61)	1453.7 - 1456.1 (57.23 - 57.33)	1447.1 - 1449.0 (56.97- 57.05)	17.0 (0.67)

Lumen Output vs. Temperature T8/T5

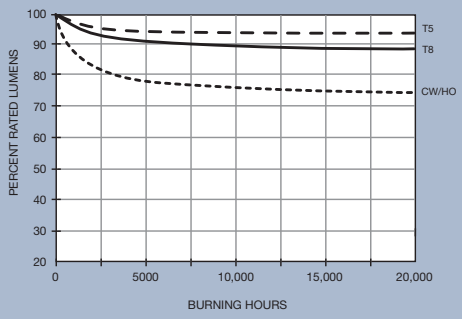


Spectral Power Distributions

PENTRON 830

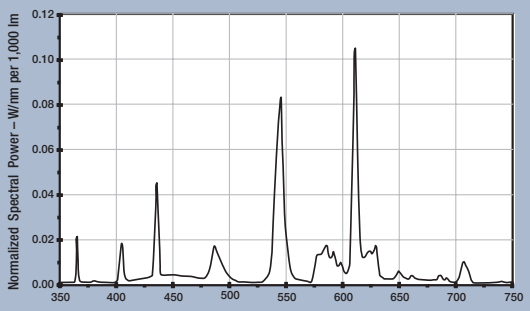


Fluorescent Lamp Lumen Maintenance

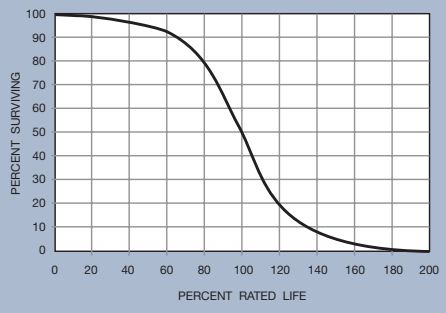


* Lumen output continues to decrease throughout the life of a fluorescent lamp.

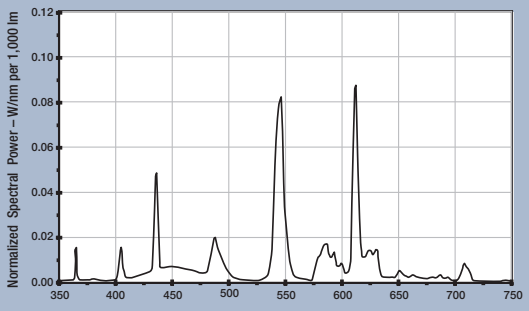
PENTRON 835



Typical Fluorescent Lamp Mortality



PENTRON 841



Sample Specification

Lamps shall be PENTRON® ECO® T5 lamps having miniature bi-pin bases and minimum of 93% lumen maintenance. Lamps shall have a correlated color temperature of (3000K, 3500K, 4100K, 5000K & 6500K) and a Color Rendering Index of 85. The PENTRON ECO T5 lamps shall be operated on dedicated QUICKTRONIC® PS ballasts having a primary voltage of (120V, 277V) with complete system warranty from the manufacturer covering lamps and ballasts.

Lamps shall be PENTRON T5 HO ECOLOGIC® lamps having miniature bi-pin bases and a minimum of 93% lumen maintenance. Lamps shall have a correlated color temperature of (3000K, 3500K, 4100K, 5000K and 6500K) and a CRI of 85. The PENTRON T5 HO ECO lamps shall be operated on dedicated QUICKTRONIC PHO ballasts having a primary voltage of (120V, 277V) with complete system warranty from the manufacturer covering lamps and ballasts.

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