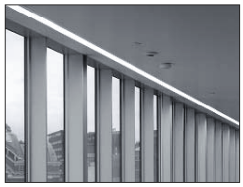
APPENDIX A: LIBRARY LIGHTING EQUIPMENT

Fixture LF1

M60 Recessed Linear Fluorescent
Flanged Extrusion - STAGGERED LAMPS

se'lux®



Project: _____ **Type:** _____ **Qty:** _____

Fixture Series	Lamp Type	Shielding	Mounting	Mounting Option	Nominal Length	Finish	Voltage

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

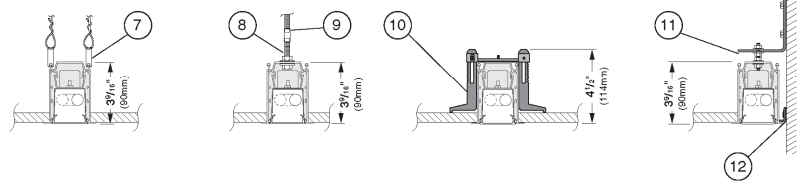
Fixture Series	Lamp Type	Shielding	Mounting	Nominal Length	Finish	Voltage	Options
M6R1S M60 Recessed Continuous Flange (Flanged Extrusion/ Flanged Endcaps) Staggered Lamps **M6R2S** M60 Recessed Flush End (Flanged Extrusion/ Flangeless Endcaps) Staggered Lamps	**1T5** F28T5 **1T5HO** F54T5HO	**OD** Extra 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[1] (prefix quantity, i.e. - **5EM**) **FS** Single Fusing **DM** Dimming[1] (specify system) **DMA** Digital Addressable Dimming[1] **FW** Flex Whip (standard) **FW1** Flex Whip (dimming) **Track** Eutrac Standard[2] **DL** Suitable for Damp Locations **Downlights** (See MR11 spec sheet, pp.98)

[1]Must be low profile ballasts (1³⁄₁₆" W x 1³⁄₁₆" H); consult factory for details. [2]Consult factory for details.

Mounting Diagrams

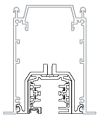
Scale = 1 : 8

Suspension Clips (SH) | **Pre-installed Rod (TS)** | **Rotating Crossbars (RC)** | **Perimeter Mount (PM)**



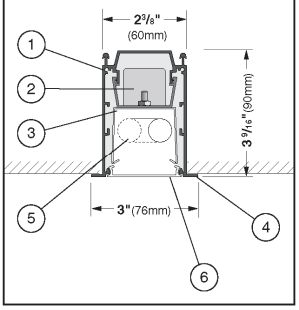
Track

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



M6R1S
M6R2S

Scale = 1 : 4



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#.

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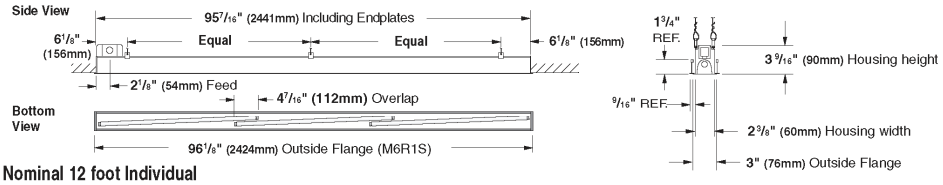
FAX: (845) 691-6749
www.selux.com/usa
M6R1S-01 (v5.0)

c UL us LISTED

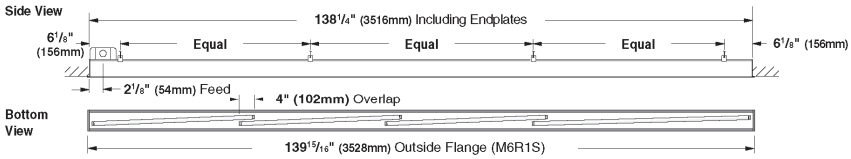
Union Made Affiliated with IBEW *Local 363*

M6R1S/M6R2S (Single Staggered Lamps) Standard Layout Dimensions

Nominal 8 foot Individual

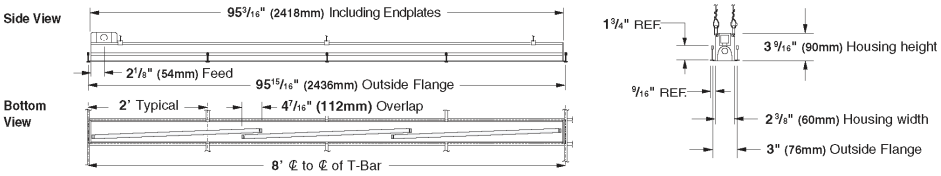


Nominal 12 foot Individual

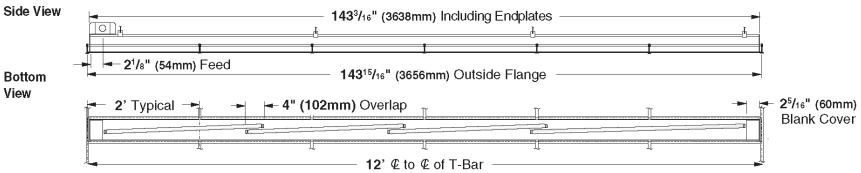


M6R1S (Single Staggered Lamps) T-Bar Layout Dimensions (option - TB)

Nominal 8 foot Individual



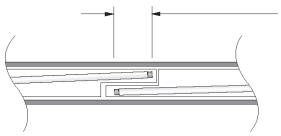
Nominal 12 foot Individual



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.

Fixture LF2

new in '05

louver/lens

avenue® a

FOCAL POINT

FEATURES

Narrow aperture high performance T5/T5HO asymmetric wall wash with louver or lens shielding options.

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

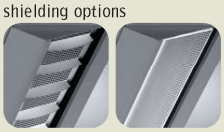
Features 2" narrow aperture for clean unobtrusive aesthetic.

Universal mounting allows compatibility for multiple grid types.

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

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

shielding options



cut–off louver clear lens

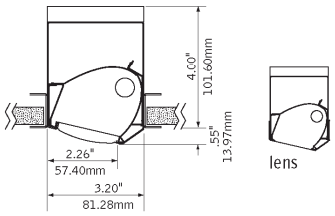
companion luminaire

mr16 linear recessed wall mount

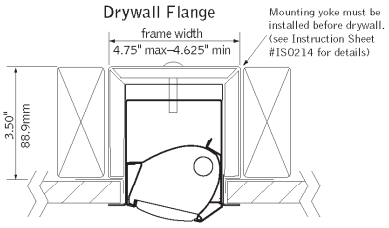
november 2005

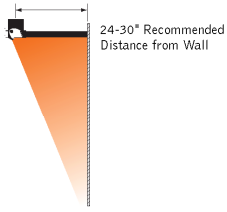
DIMENSIONAL DATA

Grid Mount (Louver Shown)

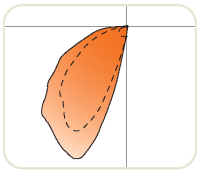


Drywall Flange





PERFORMANCE



1–Lamp T5HO
41% Efficiency
1581 cd @ 25°

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

fixture type:

project name:

RECESSED

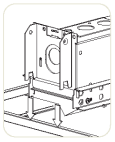
DETAILS

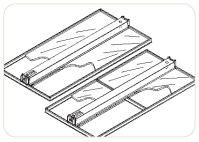
grid

2' unit

4' unit

g1 g2 g3





Luminaires cannot be installed in T-bar ceiling systems over 1.5".

drywall

2' unit

3' unit

4' unit

Drywall flange version provided with mounting yoke.

SPECIFICATIONS

construction

One-piece 20 Ga. steel housing

Grid fixtures include 20 Ga. steel, .5" wide universal flange rail finished in matte satin white.

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

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

optic

.020" specular aluminum upper reflector and .020" semi-specular lower reflector.

24 Ga. perforated matte black diffuser with 24% opening.

Radial cut–off louver: .375" H x 1" frequency fabricated of 24 Ga. steel.

Clear lens: .060" thick clear acrylic.

electrical

Luminaires are individually wired for specified circuits.

Thru-wiring not available.

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

Optional DALI and other dimming ballasts available.

Consult factory for dimming specifications and availability.

UL and cUL listed.

emergency

Emergency battery packs provide 90 minutes of illumination.

Initial lumen output for lamp types are as follows:

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

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

finish

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

Standard luminaire housing finished in Matte Satin White or Matte Black.

Perforated diffuser finished in Matte Black as standard.

Radial cut–off louver painted Matte Satin White as standard.

ORDERING

luminaire series		FAVA
Avenue A	FAVA	
shielding		
Clear Lens	CL	
Radial Cut–off Louver (Louver painted white)	RL	
lamping		
One Lamp T5	1T5	
One Lamp T5HO	1T5HO	
circuits		1C
Single Circuit	1C	
voltage		
120 Volt	120	
277 Volt	277	
347 Volt (Consult factory for availability)	347	
ballast		
Electronic Program Start <10% THD	S	
Electronic Dimming Ballast (Consult factory for dimming availability)	D	
mounting		
15/16" Grid	G1	
9/16" Grid	G2	
9/16" Slot Tee	G3	
Drywall Flange Cut out dimensions: 2': 3.5" x 23.6" 3': 3.5" x 35.6" 4': 3.5" x 47.6"	F	
factory options		
Chicago Plenum	CP	
Emergency Circuit	EC	
Emergency Battery Pack (3' & 4' Fixtures Only)	EM	
Seismic Brackets	EQ	
HLR/GLR Fuse	FU	
Include 3000K Lamp	L830	
Include 3500K Lamp	L835	
Include 4100K Lamp	L841	
finish		
Matte White Housing	WH	
Matte Black Housing (Perforated diffuser always painted black) (Radial cut–off louver painted Matte Satin White as standard.)	BK	
luminaire length		
2' Nominal Housing (Grid Mount Only)	2'	
3' Nominal Housing	3'	
4' Nominal Housing (For continuous row mount in drywall ceiling, specify luminaire run length, ie 24')	4'	

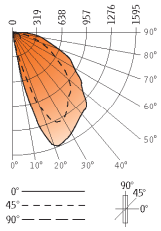
Focal Point L.L.C. 4201 South Pulaski Rd, Chicago, Illinois 60632 | T: 773.247.9494 | F: 773.247.8484 | info@focalpointlights.com | www.focalpointlights.com

louver

avenue® a

Filename: FAVARL1T5H.IES
Catalog #: FAVA-RL-1T5HO-1C-120-S-G1-WH-4'
Efficiency: 41%
Test #: 12597.0

CANDLEPOWER DISTRIBUTION



Vertical Angle	Horizontal Angle 0°	22.5°	45°	67.5°	90°	Zonal Lumens
0°	120	120	120	120	120	
5°	175	161	137	129	120	13
15°	1212	1043	556	187	121	104
25°	1581	1520	1301	404	137	248
35°	1457	1370	1228	774	144	373
45°	1354	1255	1070	835	131	443
55°	1077	952	783	582	118	383
65°	787	662	509	342	107	277
75°	441	360	244	119	66	133
85°	171	124	65	39	17	45
90°	67	51	13	0	0	
95°	0	0	0	0	0	0
105°	0	0	0	0	0	0
115°	0	0	0	0	0	0
125°	0	0	0	0	0	0
135°	0	0	0	0	0	0
145°	0	0	0	0	0	0
155°	0	0	0	0	0	0
165°	0	0	0	0	0	0
175°	0	0	0	0	0	0
180°	0	0	0	0	0	

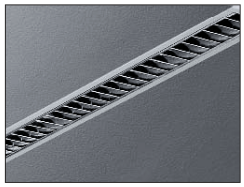
LUMEN SUMMARY

	Zone	Lumens	% Lamp	% Fixt
	0°-30°	365	7.3	17.9
	0°-40°	737	14.7	36.3
	0°-60°	1564	31.3	76.9
	0°-90°	2018	40.4	99.3
Total Luminaire	0°-180°	2032	40.6	100.0

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

M60 Linear Fluorescent Recessed

se'lux



Project: _____ **Type:** _____ **Qty:** _____

Fixture Series	Lamp Type	Shielding	Mounting	Linear Footage	Finish	Voltage
_____ –	_____ –	_____ –	_____ –	_____ –	_____ –	_____ –

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

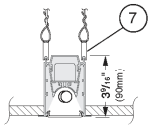
Fixture Series	Lamp Type	Shielding	Mounting	Linear Footage	Finish	Voltage	Options
M6R1 M60 Recessed Continuous Flange (Flanged Extrusion/ Flanged Endcaps) **M6R2** M60 Recessed Flush End (Flanged Extrusion/ Flangeless Endcaps)	**1T5** F28T5 **1T5HO** F54T5HO	**MA** Matte Parabolic **MP** Silky Specular Parabolic Louver **SD** Satine Lens **OD** Extra Diffuse Lens	**SH** Suspension Clips **RC** Rotating Crossbars **PM** Perimeter Mount **TS** 1" Studs (factory installed)	**004** 4 foot **008** 8 foot **012** 12 foot For actual lengths see layout dimensions. 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 (M6R1 only) **(qty.)EM** Stand-by Battery Pack[1] (prefix quantity, i.e. - **5EM**) **FS** Single Fusing **DM** Dimming[1] (specify system) **DMA** Digital Addressable Dimming[1] **SI** Satine Acrylic Inlay[2] **FW** Flex Whip (standard) **FW1** Flex Whip (dimming) **Track** Eutrac Standard[3] **DL** Suitable for Damp Locations **CCEA** Chicago Plenum **Downlights** (See MR11 spec sheet, pp.98)

[1]Must be low profile ballasts (1⅜" wide x 1 3/16" high); consult factory for details. [2]Available for MP Louver only. [3]Consult factory for details.

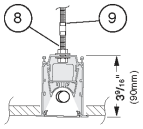
Mounting Diagrams

Scale = 1 : 8

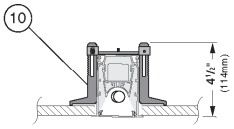
Suspension Clips (SH)



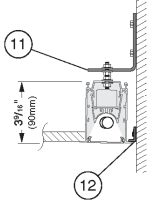
Pre-installed Rod (TS)



Rotating Crossbars (RC)

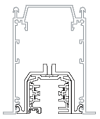


Perimeter Mount (PM)



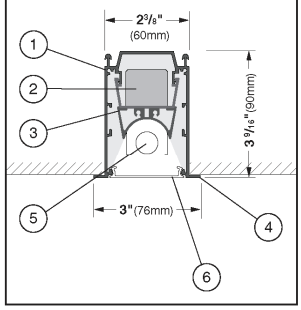
Track

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



M6R1
M6R2

Scale = 1 : 4



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 tray with specular aluminum reflector. Gear tray installs as complete electrical unit and is held in place with 1/4 turn latches. It is fully accessible from below ceiling.

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

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

6. Shielding - Louvers offer excellent glare control in longitudinal, lateral, and all diagonal planes. High quality aluminum louvers and acrylic shielding allow true freedom of layout for today's modern spaces.

7. Spring steel suspension clips - Supplied two places, located nominally every 4 ft. 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#.

TEL: (845) 691-7723
FAX: (845) 691-6749
www.selux.com/usa
M6R-01 (v5.0)

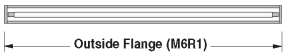
c UL us LISTED
Union Made Affiliated with **IBEW** *Local 363*

M60 Recessed Linear Fluorescent Flanged Extrusion

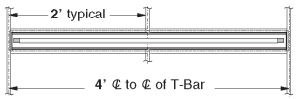
se'lux®

M6R1 and M6R2 Standard Layout Dimensions

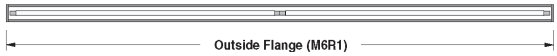
M6R1 Recessed - nominal 4 foot individual



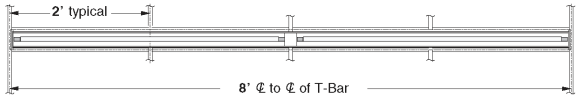
M6R1 Recessed - T-Bar Length - nominal 4 foot individual



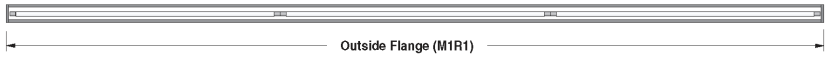
M6R1 Recessed - nominal 8 foot individual



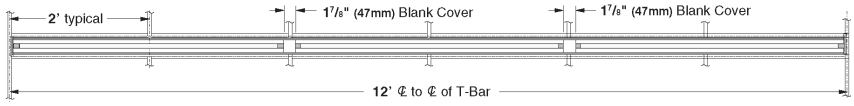
M6R1 Recessed - T-Bar Length - nominal 8 foot individual



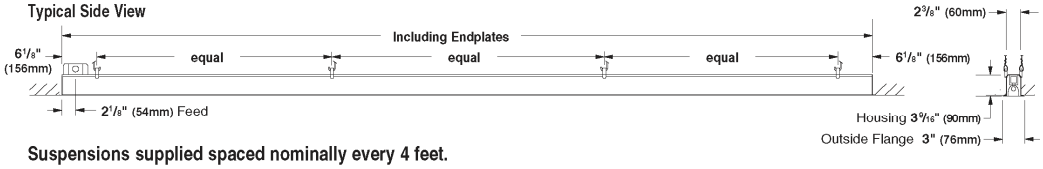
M6R1 Recessed - nominal 12 foot individual



M6R1 Recessed - T-Bar Length - nominal 12 foot individual



Typical Side View



Continuous Flange (M6R1)

Flush End (M6R2)

Suspensions supplied spaced nominally every 4 feet.
Fixture supplied with 7/8 knockout located 2 1/8" from end in top of fixture.

	T5 (1 or 2 lamp)			
	M6R1/M6R2 Including Endplates	M6R1 Outside Flange	M6R1/M6R2 - TB Including Endplates	M6R1 - TB Outside Flange
4 foot individual	47.28" (1201mm)	46.63" (1184mm)	47.03" (1195mm)	47.91" (1216mm)
8 foot individual	93.72" (2380mm)	93.03" (2362mm)	95.21" (2418mm)	95.88" (2435mm)
12 foot individual	140.13" (3559mm)	139.43" (3541mm)	143.25" (3638mm)	143.22" (3638mm)

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).

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PO Box 1060, 5 Lumen Lane / Highland, NY 12528
TEL: (845) 691-7723 / FAX: (845) 691-6749
E-mail: seluxus@selux.com / Web Site: www.selux.com/usa
M6R1-02 (02/06)

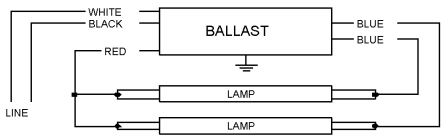
Ballast LB1

ICN-2M32-MC@277V	
Brand Name	CENTIUM
Ballast Type	Electronic
Starting Method	Instant Start
Lamp Connection	Series
Input Voltage	120-277
Input Frequency	50/60 HZ
Status	Active

Electrical Specifications

Lamp Type	Num. of Lamps	Rated Lamp Watts	Min. Start Temp (°F/C)	Input Current (Amps)	Input Power (ANSI Watts)	Ballast Factor	MAX THD %	Power Factor	MAX Lamp Current Crest Factor	B.E.F.
F14T5	2	14	32/00	0.13	36	1.05	10	0.98	1.7	2.92
F17T8	2	17	0/-18	0.11	31	0.88	10	0.98	1.7	2.84
F21T5	2	21	32/00	0.18	50	1.05	10	0.98	1.7	2.10
F25T8	2	25	0/-18	0.16	44	0.88	15	0.98	1.7	2.00
* F28T5	2	28	32/00	0.25	68	1.05	10	0.98	1.7	1.54
F32T8	2	32	0/-18	0.21	59	0.88	10	0.98	1.7	1.49
F32T8/ES (30W)	2	30	0/-18	0.20	54	0.88	10	0.98	1.7	1.63

Wiring Diagram

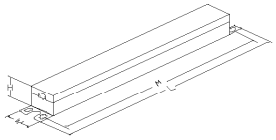


Diag. 64

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

Standard Lead Length (inches)

Enclosure



Enclosure Dimensions

OverAll (L)	Width (W)	Height (H)	Mounting (M)
9.50 "	1.08 "	1.05 "	8.91 "
9 1/2	1 2/25	1 1/20	8 91/100
24.1 cm	2.7 cm	2.7 cm	22.6 cm

Revised 02/22/2005

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

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Customer Support/Technical Service: Phone: 800-372-3331 · Fax: 630-307-3071
Corporate Offices: Phone: 800-322-2086

ICN-2M32-MC@277V	
Brand Name	CENTIUM
Ballast Type	Electronic
Starting Method	Instant Start
Lamp Connection	Series
Input Voltage	120-277
Input Frequency	50/60 HZ
Status	Active

Electrical Specifications

Notes:

Section I - Physical Characteristics

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

1.2 Ballast shall be provided with integral leads color-coded per ANSI C82.11.

Section II - Performance Requirements

2.1 Ballast shall be _____ (Instant or Rapid) Start.

2.2 Ballast shall provide Independent Lamp Operation (ILO) for Instant Start ballasts allowing remaining lamp(s) to maintain full light output when one or more lamps fail.

2.3 Ballast shall contain auto restart circuitry in order to restart lamps without resetting power (except T8/HO ballast).

2.4 Ballast shall operate from 60 Hz input source of 120V, 277V or 347V as applicable with sustained variations of +/- 10% (voltage and frequency) with no damage to the ballast. IntelliVolt models shall operate from 50/60 Hz input source of 120V through 277V with sustained variations of +/- 10% (voltage and frequency) with no damage to the ballast.

2.5 Ballast shall be high frequency electronic type and operate lamps at a frequency above 42 kHz ("GCN" models between 20kHz and 30kHz) to avoid interference with infrared devices and eliminate visible flicker.

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

2.7 Ballast shall have a minimum ballast factor for primary lamp application as follows: 0.75 for Low Watt, 0.85 for Normal Light Output, and 1.20 for High Light.

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

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

2.10 Ballast shall have a Class A sound rating for all 4-foot lamps and smaller.

2.11 Ballast shall have a minimum starting temperature of _____ [-18C (0F) for standard T8 and Long Twin Tube lamps, 10C (50F) for standard T12 lamps, 0C (32F) for Slimline T8 lamps and "GCN" models, -29C (-20F) for T8/HO lamps,] for primary lamp application. Ballast shall have a minimum starting temperature of 60F (16C) for energy-saving T8 and T12 lamps.

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

Section III - Regulatory Requirements

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

3.2 Ballast shall be Underwriters Laboratories (UL) listed, Class P and Type 1 Outdoor; and Canadian Standards Association (CSA) certified where applicable. Models with -HAZ suffix meet UL 935 Type HL (hazardous location) requirements.

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

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

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

Section IV - Other

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

4.2 Ballast shall carry a five-year warranty from date of manufacture against defects in material or workmanship, including replacement, for operation at a maximum case temperature of 70C.

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

4.4 Ballast shall be Advance part # _____ or approved equal.

NOTE: The use of Optanium 2.0 (IOP) models is recommended to reduce striation in energy-saving T8 lamps (25W, 28W or 30W). Remote or tandem wiring of energy-saving T8 lamps (25W, 28W or 30W) is only recommended for Optanium 2.0 (IOP) models.

Revised 02/22/2005

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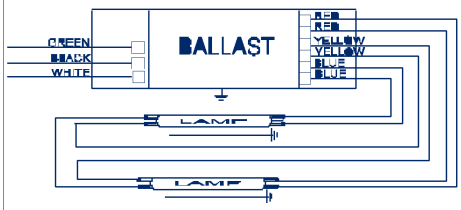
ADVANCE

ICN-2S54-90C@277	
Brand Name	CENTIUM T5
Ballast Type	Electronic
Starting Method	Programmed Start
Lamp Connection	Series
Input Voltage	120-277
Input Frequency	50/60 HZ
Status	Active

Electrical Specifications

Lamp Type	Num. of Lamps	Rated Lamp Watts	Min. Start Temp (°F/C)	Input Current (Amps)	Input Power (ANSI Watts)	Ballast Factor	MAX THD %	Power Factor	MAX Lamp Current Crest Factor	B.E.F.
F54T5/HO	1	54	-20/-29	0.23	62	1.02	10	0.96	1.7	1.65
* F54T5/HO	2	54	-20/-29	0.43	117	1.00	10	0.98	1.7	0.85

Wiring Diagram



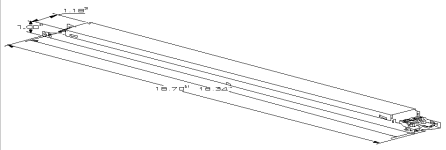
The wiring diagram that appears above is for the lamp type denoted by the asterisk (*)

Standard Lead Length (inches)

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

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

Enclosure



Enclosure Dimensions

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

Revised 01/31/2007

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ICN-2S54-90C@277	
Brand Name	CENTIUM T5
Ballast Type	Electronic
Starting Method	Programmed Start
Lamp Connection	Series
Input Voltage	120-277
Input Frequency	50/60 HZ
Status	Active

Electrical Specifications

Notes:

Section I - Physical Characteristics

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

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

Section II - Performance Requirements

2.1 Ballast shall be Programmed Start.

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

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

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

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

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

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

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

2.9 Ballast shall have a Class A sound rating.

2.10 Ballast shall have a minimum starting temperature of _____ {-18C (0F) or -28C (-20F)} for primary lamp. Consult lamp manufacturer for temperature versus light output characteristics.

2.11 Ballast shall provide Lamp EOL Protection Circuit.

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

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

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

Section III - Regulatory Requirements

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

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

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

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

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

3.6 Ballast shall comply with UL Type CC rating.

Section IV - Other

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

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

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

4.4 Ballast shall be Advance part # _____ or approved equal.

Revised 01/31/2007

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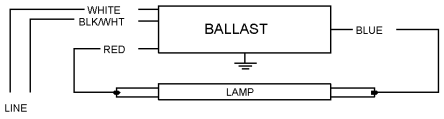
ICN-132-MC@277V	
Brand Name	CENTIUM MICRO CAN
Ballast Type	Electronic
Starting Method	Instant Start
Lamp Connection	Series
Input Voltage	120-277
Input Frequency	50/60 HZ
Status	Active

Electrical Specifications

Lamp Type	Num. of Lamps	Rated Lamp Watts	Min. Start Temp (°F/C)	Input Current (Amps)	Input Power (ANSI Watts)	Ballast Factor	MAX THD %	Power Factor	MAX Lamp Current Crest Factor	B.E.F.
F14T5	1	14	32/00	0.07	19	1.05	20	0.98	1.7	5.53
F17T8	1	17	0/-18	0.06	17	0.88	20	0.98	1.7	5.18
F21T5	1	21	32/00	0.09	26	1.05	15	0.98	1.7	4.04
F25T8	1	25	0/-18	0.09	23	0.88	15	0.98	1.7	3.83
* F28T5	1	28	32/00	0.12	34	1.05	10	0.98	1.7	3.09
F32T8	1	32	0/-18	0.11	30	0.88	10	0.98	1.7	2.93
F32T8/ES (30W)	1	30	60/16	0.10	27	0.88	10	0.98	1.7	3.26

Wiring Diagram

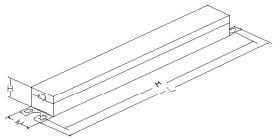


Diag. 63

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

Standard Lead Length (inches)

Enclosure



Enclosure Dimensions

OverAll (L)	Width (W)	Height (H)	Mounting (M)
9.50 "	1.08 "	1.05 "	8.91 "
9 1/2	1 2/25	1 1/20	8 91/100
24.1 cm	2.7 cm	2.7 cm	22.6 cm

Revised 01/06/2005

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

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ICN-132-MC@277V	
Brand Name	CENTIUM MICRO CAN
Ballast Type	Electronic
Starting Method	Instant Start
Lamp Connection	Series
Input Voltage	120-277
Input Frequency	50/60 HZ
Status	Active

Electrical Specifications

Notes:

Section I - Physical Characteristics

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

1.2 Ballast shall be provided with integral leads color-coded per ANSI C82.11.

Section II - Performance Requirements

2.1 Ballast shall be Instant Start.

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

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

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

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

2.6 Ballast shall have a minimum ballast factor for primary lamp application as follows: 0.75 for Low Watt, 0.85 for Normal Light Output, and 1.20 for High Light.

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

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

2.9 Ballast shall have a Class A sound rating.

2.10 Ballast shall have a minimum starting temperature of -18C (0F) for standard T8 lamps and 16C (60F) for energy-saving T8 lamps.

2.11 Ballast shall provide Lamp EOL Protection Circuit.

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

Section III - Regulatory Requirements

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

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

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

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

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

Section IV - Other

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

4.2 Ballast shall carry a five-year warranty from date of manufacture against defects in material or workmanship, including replacement, for operation at a maximum case temperature of 70C.

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

4.4 Ballast shall be Advance part # _____ or approved equal.

NOTE: The use of Optanium 2.0 (IOP) models is recommended to reduce striations in energy-saving T8 lamps (25W, 28W or 30W). Remote or tandem wiring of energy-saving T8 lamps (25W, 28W or 30W) is only recommended for Optanium 2.0 (IOP) models.

Consult lamp manufacturer for operation of T5 lamps on instant start ballasts.

Revised 01/06/2005

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O'HARE INTERNATIONAL CENTER - 10275 WEST HIGGINS ROAD
ROSEMONT, ILLINOIS 60018
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Lamp LT5

16/2/2007

28W/830 Min Bipin T5 HE ALTO UNP

Product family description
Ultra-slim design with extraordinary light output.

Features/Benefits

- Improved optical control.
- Fixtures can be 40% smaller than T8 systems.
- Design flexibility for cove and cabinet lighting.
- Better fin in 2 x 2 and 2 x 4 grid ceilings.
- Up to 104 lumens per watt.
- 95% lumen maintenance.
- 85 CRI in 3000, 3500 and 4100K.
- High system efficacy.
- Fail-safe operation at end of life.
- 20,000 hours rated average life.

Applications

- Ideal for general, decorative and architectural lighting in offices, retail stores, hotels, schools and hospitals.

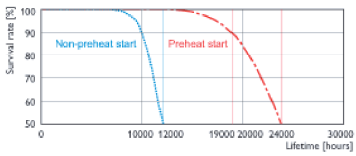
Notes

- NOT compatible with dimming ballasts.
- Silhouette™ T5 nominal lamp lengths are shorter than standard sizes. See dimension chart for details.

Product data	
Product Number	230847
Full product name	28W/830 Min Bipin T5 HE ALTO UNP
Ordering Code	F28T5/830
Pack type	Unpacked
Pieces per Sku	1
Skus / Case	40
Pack UPC	046677230845
EAN2US	
Case Bar Code	50046677230840
Successor Product number	
Watts[W]	28W
Color Code	830 [CCT of 3000K]
Base	Min Bipin [Miniature Bipin]
Bulb	T5 [16mm]
Special packing	ALTO
Packing Type	UNP [Unpacked]
Packing Configuration	40
System Description	High Efficiency
Base Information	Green[Green Base]
Rated Avg. Life[hr]	24000

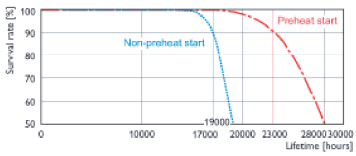
PHILIPS

Product data	
Dimmable	Yes
Mercury (Hg) Content[mg]	
Color Rendering Index[Ra8]	85
Color Temperature[K]	3000
Initial Lumens[Lm]	-
Overall Length C[mm]	1163.2
Diameter D[mm]	17



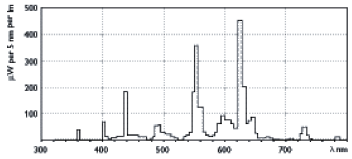
Life Expectancy 3h cycle

TL5

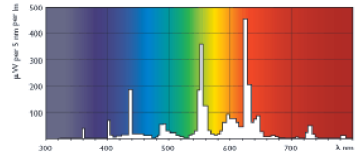


Life Expectancy 12h cycle

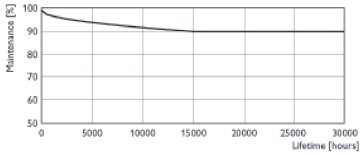
TL5



TL5/830

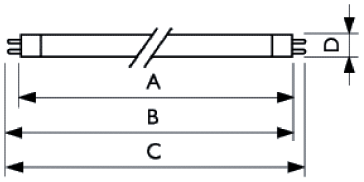


TL5/830



TL5

PHILIPS

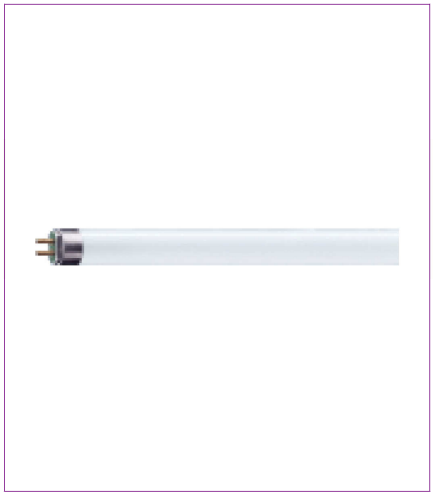


TL5

	A		B	C	D
Full product name	Max	Min	Max	Max	Max
28W/830 Min Bipin T5 HE ALTO UNP	1149.0	1153.7	1156.1	1163.2	17

Lamp LT5HO

16/2/2007



– 54W/830 Min Bipin T5 HO ALTO UNP

Product family description
Powerful, environmentally-responsible ultra-slim lamps.

Features/Benefits

- Miniaturization: slim profile lamp and ballast.
- Operated on programmed start electronic ballasts.
- Low mercury: TCLP* compliant.
- Energy efficeint.
- Long life.
- Less mercury and fewer lamps in landfills, combined with energy efficiency reduces the impact on the environment.
- 85 CRI in 3000, 3500, 4100 and 5000K.
- 20,000 hours rated average life.

Applications

- Ideal for medium and high bay retail. Ideal for industrial applications.

Note

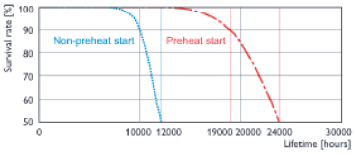
- Philips Lighting warrants T5 HO lamps when used with ballasts that are designed to meet the proposed IEC (International Electrotechnical Commission) dimming requirements and all other industry standards, ie: NEC,UL,IEC and ANSI. Please work with your Philips representative to get dimming approval before installation.
- Silhouette™ T5 nominal lamp lengths are shorter than standard sizes. See dimension chart for details.

Product data	
Product Number	290262
Full product name	– 54W/830 Min Bipin T5 HO ALTO UNP
Ordering Code	F54T5/830/HO/ALTO
Pack type	Unpacked
Pieces per Sku	1
Skus / Case	40
Pack UPC	046677290269
EAN2US	
Case Bar Code	50046677290264
Successor Product number	
Watts[W]	54W
Color Code	830 [CCT of 3000K]
Base	Min Bipin [Miniature Bipin]
Bulb	T5 [16mm]
Special packing	ALTO
Packing Type	UNP [Unpacked]
System Description	High Output
Base Information	Green[Green Base]

PHILIPS

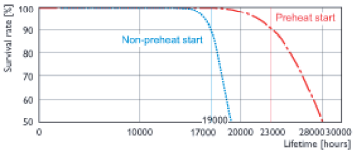
1

Product data	
Packing Configuration	40
Rated Avg. Life[hr]	24000
Dimmable	Yes
Mercury (Hg) Content[mg]	
Color Rendering Index[Ra8]	85
Color Temperature[K]	3000
Initial Lumens[Lm]	–
Overall Length C[mm]	1163.2
Diameter D[mm]	17



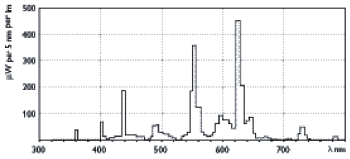
Life Expectancy 3h cycle

TL5

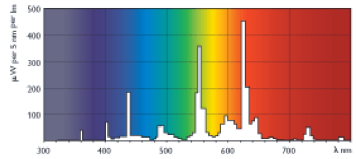


Life Expectancy 12h cycle

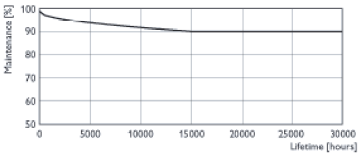
TL5



TL5/830

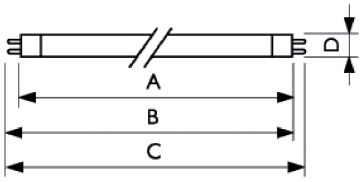


TL5/830



TL5

PHILIPS



TL5

	A		B	C	D
Full product name	Max	Min	Max	Max	Max
- 54W/830 Min Bipin T5 HO ALTO UNP	1149.0	1153.7	1156.1	1163.2	17

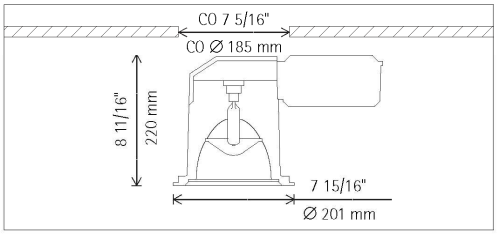
APPENDIX B: ENTRANCE LIGHTING EQUIPMENT

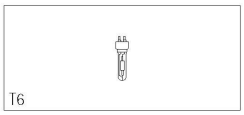
Fixture FF1

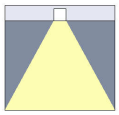
ERCO

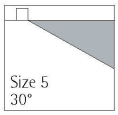
LC Downlight

for metal halide lamps



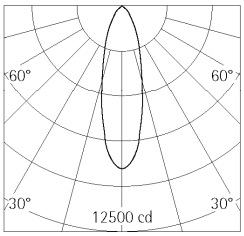






81030.023 Reflector silver
T6 70W G12 6600lm
ECG

Product description
Housing: cast aluminum, silver powder-coated. Mounting with 3-point support and screw-tightening. Side-mounted control gear: cast aluminum, black powder-coated.
Electronic control gear 120V/277V, 60Hz. Through-wiring possible.
Low brightness reflector: aluminum, specular anodized. Cut-off angle 30° from horizontal. Diffuser as lamp cover: glass, frosted.
Screw-fastened cover ring with safety glass: corrosion-resistant, cast aluminum, No-rinse surface treatment. Silver, double powder-coated. To be removed together with low-brightness reflector for lamp replacement.
Suitable for wet location (IP65): dust-proof and water jet-proof.
Weight 9.26lbs / 4.20kg



T6 70W G12 6600lm

h(ft)	E(fc)	D
		29°
3	1005	1'7"
6	251	3'1"
9	112	4'8"
12	63	6'2"
15	40	7'9"

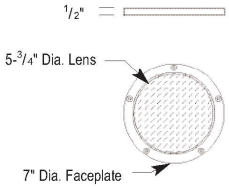
ERCO Lighting, Inc.
160 Raritan Center Parkway
Suite 10
Edison, NJ 08837
USA
Tel.: +1 732 225 8856
Fax: +1 732 225 8857
info.us@erco.com

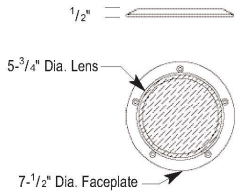
Technical Region: 120V/277V, 60Hz
Edition: 11.16.2006
Please download latest version from
www.erco.com/81030.023

Fixture FF2

T-6 Metal Halide

Integral Ballast





TR

Integral Ballast
- Patented HydroLock™ Technology
- Modular Component Construction

B-K LIGHTING

30

Catalog Number Logic

Material	Faceplate	OptiLock™	Reflector	Housing	Lamp	Finish	Accessory	Input Voltage	Option
S	CO2	T635	FL	TR	81	POL	11	120	AH

Material
Blank - Aluminum
B - Brass
S - Stainless Steel

Faceplate
HP2 - (Flush)
CO2 - (Flange)

OptiLock™
T635 - T-6 Metal Halide (35W)

Reflector
SP - Spot
MS - Medium Spot
FL - Flood

Housing
TR - Integral Ballast

Lamp
0 - By Others
81 - (35W) Metal Halide T-6 / 830

For lamp information, see page 70.

Finish

Aluminum & Brass Faceplates

Powder Coat Color	Satin	Wrinkle
Bronze	BZP	BZW
Black	BLP	BLW
White (Gloss)	WHP	WHW
Aluminum	SAP	--
Verde	--	VER

Brass Faceplates

Machined	MAC
Polished	POL
Mitique™	MIT

Stainless Faceplates

Machined	MAC
Polished	POL
Brushed	BRU

See Pages 60-61 for Additional Finish choices

Accessory *Select up to 2. Requires Accessory Holder. See page 55 for Accessory details.*
10 - Spread Lens
11 - Honeycomb Baffle
13 - Rectilinear Lens

Input Voltage
120 - 120 Volt
277 - 277 Volt

Option
AH - Accessory Holder *(Accommodates up to 2 Media)*
CPC - Concrete Pour Collar *(HP2 Only.) See page 54 for CPC details. Material and Finish to Match Faceplate. May be Field Installed prior to permanent installation of side conduit connectors. Included with ICEE Lens option.*
DG - Dome Glass Lens *(Replaces Flat Glass. Not Driveover Rated)*
GS - Glare Shield*
HD - Half Dome*
ICEE - ICEE™ Lens *(HP2 Only. Faceplate standard aluminum only. Concrete Pour Collar included.)** See pages 56-57 for details.*
RG - Rock Guard*
RO - Rock Guard with Optical Opening*
TC - Traction Control Lens *(Replaces Flat Glass.) See page 58 for details.*

** HP2 Only. Material and Finish to Match Faceplate. Dome lens included. See pages 52-54 for Option details.*

***Options DG, GS, HD, RG and RO not available with ICEE lens option*

Specifications

Fixture Housing
Corrosion-free composite, made from high strength, thermo-formed, sheet molded polyester compound. Glass reinforced, flame retardant and UV stabilized. (2) Bottom-Entry, 3/4" NPT female conduit entries with knockout plugs and (4) side flats for 1/2" or 3/4" conduit adapters.

Stability Flange (Pat. Pend)
Corrosion-free composite flange projects into installation sub-strate to reinforce housing stability. Integral REBAR saddles simplify installation onto concrete form. (4) Orthogonal bosses permit use of ½" PCV conduit or EMT to simplify vertical position and leveling of housing. Pre-set self-tapping screws anchor housing at proper elevation.

Aiming
Dual axis OptiLock™ stainless steel aiming bracket rotates 360° and provides vertical adjustment up to 14° from nadir. Positive lock action ensures optical orientation.

Socket
Specification grade ceramic body lamp holder rated for 5kV starting pulse. G12 bi-pin base, nickel-plated contacts and stainless steel, heat resistant lamp retaining clips.

Ballast Assembly
Class H Insulated, High Power Factor, Magnetic (120VAC or 277 VAC) Ballast. Integral, removable gear tray with quick disconnect and carrying handle.

Wiring / Connectors
Teflon® coated wire, 18 gauge, 600V, 250°C rated and certified to UL1659 standard. OptiLock™ and gear tray quick disconnects. Patented HydroLock™ with anti-siphon valve (ASV™) wireway. (3) Water-Tight connectors supplied for line connection. Maximum (2) #10 & (1) #18. Minimum (1) #12 & (1) #18.

Water Management
Self Evacuating Airtight Lamp Module (S.E.A.L.™). IP-68 rated, vacuum sealed enclosure. Patented Anti-Condensation Valve (ACV™) eliminates condensation from optical chamber. High temperature silicone 'O' Ring at faceplate. Patented HydroLock™ technology provides fail safe water barrier between junction box and interior components. Anti-siphon valve (ASV™) prevents "wicking" through conductor insulation.

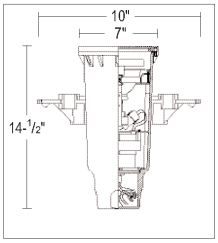
Lens
High heat, shock resistant, tempered 1/4" borosilicate flat glass lens. Suitable for walk-over and drive-over applications.

Faceplate
Solid, 1/2" machined 6061T6 aluminum with (5) black oxide, captive, stainless steel mounting screws. Faceplate options include solid, 1/2" machined brass and solid, 1/2" machined stainless steel.

Finish
StarGuard® (Pat. Pend), a 15 stage, chromate-free process cleans and conversion coats aluminum components prior to application of Class 'A' TGIC polyester powder coating. Brass components are available in powder coat or handcrafted metal finish. Stainless steel components are available in handcrafted metal finish.

Listings
ARL and CSA Listed.

®Teflon is a registered trademark of DuPont Corporation



B-K LIGHTING

Ballast FB1

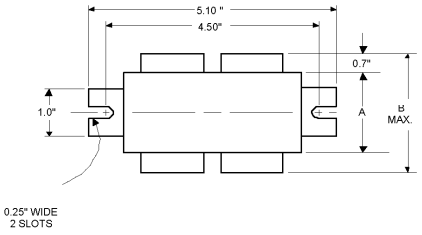
ADVANCE™

Metal Halide Lamp Ballast

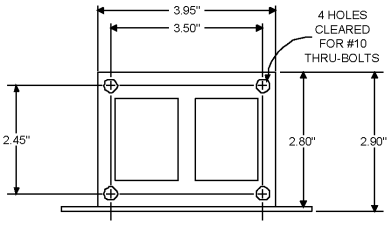
Catalog Number 71A5281
For 70W M139
60 Hz HX-HPF
Status: Active

DIMENSIONS AND DATA

3 X 4 CORE - 2 COIL UNIT



0.25" WIDE
2 SLOTS



INPUT VOLTS		120	277			
CIRCUIT TYPE	HX-HPF					
POWER FACTOR (min)	90%					
REGULATION						
Line Volts	±5%					
Lamp Watts	±7%					
LINE CURRENT (Amps)						
Operating		0.85	0.37			
Open Circuit		1.60	0.70			
Starting		0.85	0.40			
UL TEMPERATURE RATINGS						
Insulation Class	H(180°C)					
Coil Temperature Code	1029	A	A			
MIN. AMBIENT STARTING TEMP.	-20°F or -30°C					
NOM. OPEN CIRCUIT VOLTAGE	245					
INPUT VOLTAGE AT LAMP DROPOUT		80	190			
INPUT WATTS	94					
RECOMMENDED FUSE (Amps)		4	2			
CORE and COIL						
Dimension (A)	1.50					
Dimension (B)	2.70					
Weight (lbs.)	5.5					
Lead Lengths	12"					
CAPACITOR REQUIREMENT						
Microfarads						
Volts (min.)	8.0					
Fault Current Withstand (amps)	280					
60 Hz TEST PROCEDURES (Refer to Advance Test Procedure for HID Ballasts - Form 1270)						
High Potential Test (Volts)						
1 minute						
2 seconds	2000					
Open Circuit Voltage Test (Volts)	2500					
Short-Circuit Current Test (Amps)	220-270					
Secondary Current						
Input Current	1.10-1.40	0.70 1.10	0.30 0.50	-	-	-

Capacitor: 7C080L33-R

Capacitance: 8
Dia/Oval Dim: 1.25
Height: 2.9
Temp Rating: 105°C

Wiring Diagram:

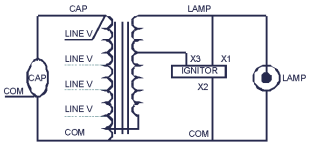


Fig. K3

U.L. RECOGNIZED

Ignitor: LI533-H4

Ballast to Lamp Distance (BTL) = 10 feet
Temp Rating: 105°C

Typical Ordering Information

(please call Advance for suffix availability)

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

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

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

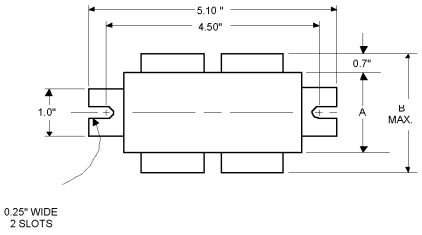
05/13/99

Ballast FB2

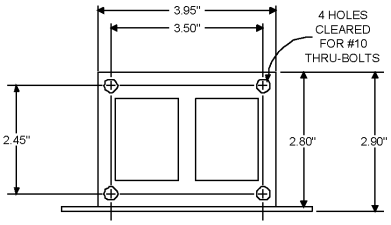
ADVANCE	Metal Halide Lamp Ballast	Catalog Number 71A5081 For 35/39W M130 60 Hz HX-HPF Status: Active

DIMENSIONS AND DATA

3 X 4 CORE - 2 COIL UNIT



0.25" WIDE
2 SLOTS



INPUT VOLTS		120	277			
CIRCUIT TYPE	HX-HPF					
POWER FACTOR (min)	90%					
REGULATION						
Line Volts	±5%					
Lamp Watts	±10%					
LINE CURRENT (Amps)						
Operating		0.45	0.20			
Open Circuit		0.90	0.40			
Starting		0.50	0.22			
UL TEMPERATURE RATINGS						
Insulation Class	H(180°C)					
Coil Temperature Code	1029	B	A			
MIN. AMBIENT STARTING TEMP.	-20°F or -30°C					
NOM. OPEN CIRCUIT VOLTAGE	230					
INPUT VOLTAGE AT LAMP DROPOUT		85	195			
INPUT WATTS	56					
RECOMMENDED FUSE (Amps)		3	1			
CORE and COIL						
Dimension (A)	0.80					
Dimension (B)	2.10					
Weight (lbs.)	3.5					
Lead Lengths	12"					
CAPACITOR REQUIREMENT						
Microfarads						
Volts (min.)	5.0					
Fault Current Withstand (amps)	277					
60 Hz TEST PROCEDURES (Refer to Advance Test Procedure for HID Ballasts - Form 1270)						
High Potential Test (Volts)						
1 minute						
2 seconds	2000					
Open Circuit Voltage Test (Volts)	2500					
Short-Circuit Current Test (Amps)	205-255					
Secondary Current						
Input Current	0.60-0.75	0.35 0.55	0.15 0.25	-	-	-

Capacitor: 7C050L33

Capacitance: 5
Dia/Oval Dim: 1.25
Height: 2.9
Temp Rating: 105°C

Wiring Diagram:

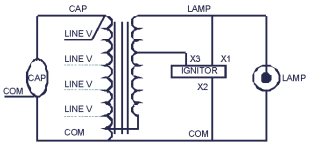


Fig. K3

U.L. RECOGNIZED

Ignitor: LI533-H4

Ballast to Lamp Distance
(BTL) = 15 feet
Temp Rating: 105°C

Typical Ordering Information

(please call Advance for suffix availability)

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

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

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

05/13/99

16/2/2007

MasterColor CDM-T 70W/830 G12 T6 1CT

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

Features / Benefits

- Excellent color rendering.
- Superior color stability over life within +- 200K.
- Lamp to lamp color consistency over life.
- Higher lumen maintenance than standard metal halide.
- Warm (3K) or fresh white (4K) color impression.
- High lamp efficacy (up to 93 lumens per watt) for energy saving and low heat.
- Universal operating position.
- Compact lamp dimensions for high beam intensities.
- FadeBlock for reduced fading risks.
- No shut off required in 24-hour-a-day/7-day-a-week operations (relamp fixtures at or before the end of rated life).
- Long lamp life compared to incandescent and halogen lamps.

Applications

- Accent and General lighting in retail, offices and public buildings. Decorative outdoor: floodlighting and pedestrian areas.

Notes

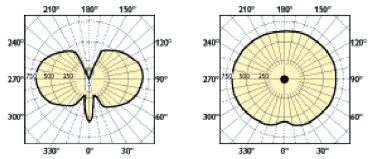
- Requires a ballast specified or approved for Philips Metal Halide lamp or one designed to the indicated ANSI Standard. A pulse ignitor is required. Sockets and wiring must withstand starting pulse. (391)
- Supply volts must be +/- 5% of rated ballast line volts for reactor type and +/- 10% for CWA or electronic ballasts. (392)
- UV filtered design (FadeBlock™). (396)
- Operate only on thermally protected ballasts (397)
- MasterColor® Metal Halide Lamps are not recommended for use on dimmers and are not warranted if used on dimmer systems. (401)
- Rated average life is the life obtained, on the average, from large representative groups of lamps in laboratory tests under controlled conditions at 10 or more operating hours per start. It is based on survival of at least 50% of the lamps and allows for individual lamps or groups of lamps to vary considerably from the average. For lamps with a rated average life of 24,000 hours, life is based on survival of 67% of the lamps. (351)
- Approximate lumen values listed are for vertical operation of the lamp. (352)
- Means Lumens is the approximate lumen output at 40% of lamp rated average life. (353)
- Heat resisting glass bulb.

Product data

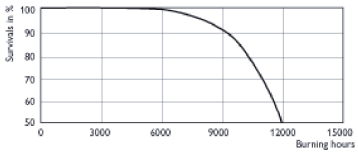
Product Number	223370
Full product name	MasterColor CDM-T 70W/830 G12 T6 1CT
Ordering Code	CDM70/T6/830
Pack type	1 Lamp in a Folding Carton
Pieces per Sku	1
Skus / Case	12
Pack UPC	046677223373

PHILIPS

Product data	
EAN2US	
Case Bar Code	50046677223378
Successor Product number	
Watts[W]	70W
Color Code	830 [CCT of 3000K]
Base	G12
Bulb	T6 [T 19mm]
Packing Type	1CT [1 Lamp in a Folding Carton]
Packing Configuration	12
Bulb Finish	Clear
Operating Position	Universal[Any or Universal (U)]
Rated Avg. Life[hr]	12000
ANSI Code HID	M139/E
System Power EL[W]	83
Lamp Voltage[V]	88
Dimmable	No
Mercury (Hg) Content[mg]	
Color Rendering Index[Ra8]	84
Color Designation	Warm White
Color Description	830 Warm White
Color Temperature[K]	3000
Initial Lumens[Lm]	6600
Design Mean Lumens[Lm]	4950
Overall Length C[mm]	103
Diameter D[mm]	20
Light Center Length L[in]	2.21875
Max Overall Length (MOL) – C[in]	3.9375
Diameter D[in]	0.75

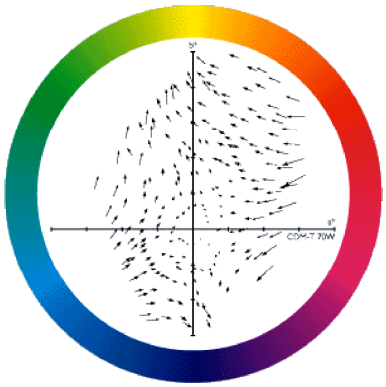


CDM-T 70W/830/942



CDM-T 70W/150W/830/942

PHILIPS



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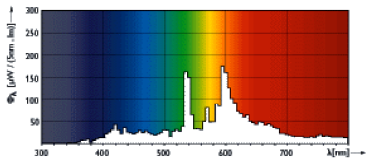

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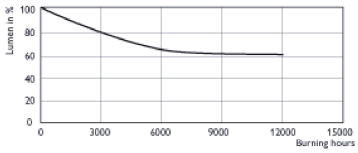

CDM-T 70W/150W/830/942

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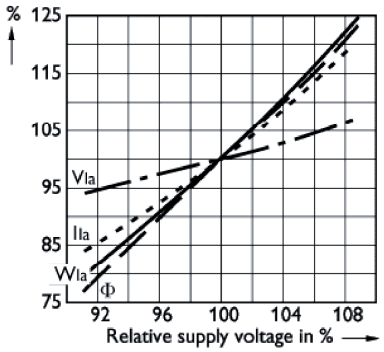

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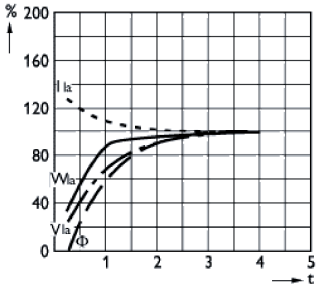
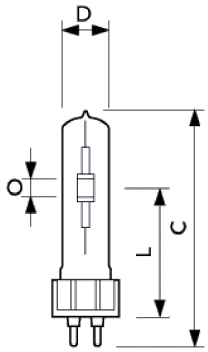


CDM-T

PHILIPS



CDM-T

	C	D		L		O
Full product name	Max	Max	Min	Nom	Max	Min
MasterColor CDM-T 70W/830 G12 T6 1CT	103	20	55	56	57	6.67

O	
Nom	Max
7	7.33

16/2/2007

MasterColor CDM-T 35W/830 G12 T6 1CT

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

Features / Benefits

- Excellent color rendering.
- Superior color stability over life within +- 200K.
- Lamp to lamp color consistency over life.
- Higher lumen maintenance than standard metal halide.
- Warm (3K) or fresh white (4K) color impression.
- High lamp efficacy (up to 93 lumens per watt) for energy saving and low heat.
- Universal operating position.
- Compact lamp dimensions for high beam intensities.
- FadeBlock for reduced fading risks.
- No shut off required in 24-hour-a-day/7-day-a-week operations (relamp fixtures at or before the end of rated life).
- Long lamp life compared to incandescent and halogen lamps.

Applications

- Accent and General lighting in retail, offices and public buildings. Decorative outdoor: floodlighting and pedestrian areas.

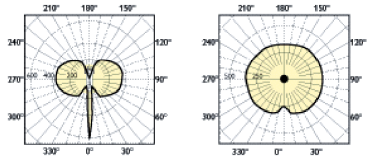
Notes

- Requires a ballast specified or approved for Philips Metal Halide lamp or one designed to the indicated ANSI Standard. A pulse ignitor is required. Sockets and wiring must withstand starting pulse. (391)
- Supply volts must be +/- 5% of rated ballast line volts for reactor type and +/- 10% for CWA or electronic ballasts. (392)
- UV filtered design (FadeBlock™). (396)
- Operate only on thermally protected ballasts (397)
- MasterColor® Metal Halide Lamps are not recommended for use on dimmers and are not warranted if used on dimmer systems. (401)
- Rated average life is the life obtained, on the average, from large representative groups of lamps in laboratory tests under controlled conditions at 10 or more operating hours per start. It is based on survival of at least 50% of the lamps and allows for individual lamps or groups of lamps to vary considerably from the average. For lamps with a rated average life of 24,000 hours, life is based on survival of 67% of the lamps. (351)
- Approximate lumen values listed are for vertical operation of the lamp. (352)
- Means Lumens is the approximate lumen output at 40% of lamp rated average life. (353)
- Heat resisting glass bulb.

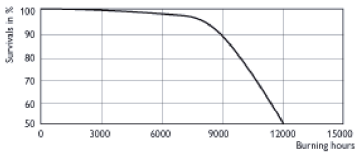
Product data	
Product Number	223289
Full product name	MasterColor CDM-T 35W/830 G12 T6 1CT
Ordering Code	CDM35/T6/830
Pack type	1 Lamp in a Folding Carton
Pieces per Sku	1
Skus / Case	12
Pack UPC	046677223281

PHILIPS

Product data	
EAN2US	
Case Bar Code	50046677223286
Successor Product number	
Watts[W]	35W
Color Code	830 [CCT of 3000K]
Base	G12
Bulb	T6 [T 19mm]
Packing Type	1CT [1 Lamp in a Folding Carton]
Packing Configuration	12
Bulb Finish	Clear
Operating Position	Universal[Any or Universal (U)]
Rated Avg. Life[hr]	12000
ANSI Code HID	M130/E
System Power EL[W]	44
Lamp Voltage[V]	88
Dimmable	No
Mercury (Hg) Content[mg]	
Color Rendering Index[Ra8]	81
Color Designation	Warm White
Color Description	830 Warm White
Color Temperature[K]	3000
Initial Lumens[Lm]	3300
Design Mean Lumens[Lm]	2600
Overall Length C[mm]	103
Diameter D[mm]	20
Light Center Length L[in]	2.21875
Max Overall Length (MOL) - C[in]	3.9375
Diameter D[in]	0.75

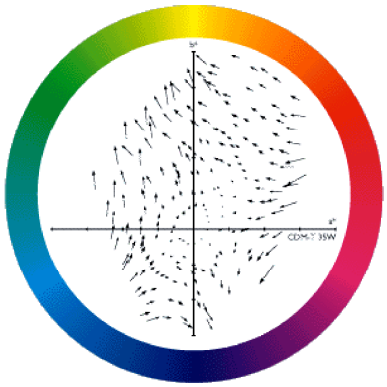


CDM-T 35W/830/930

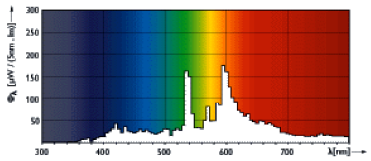


CDM-T 35W/830

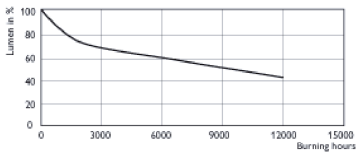
PHILIPS



CDM-T 35W/830



CDM-T/830



CDM-T 35W/830

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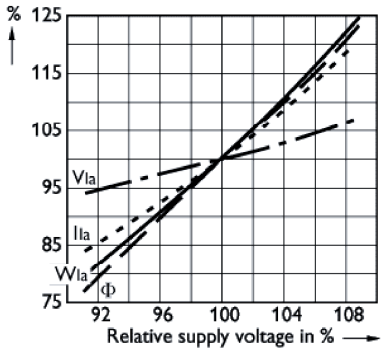
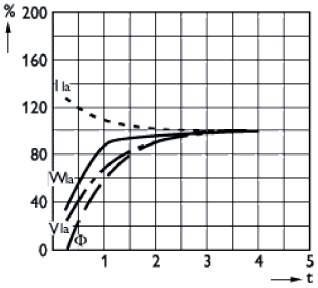
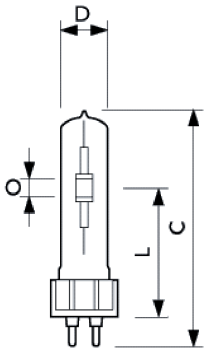


CDM-T/830



CDM-T

PHILIPS



CDM-T

	C	D		L		O
Full product name	Max	Max	Min	Nom	Max	Min
MasterColor CDM-T 35W/830 G12 T6 1CT	103	20	55	56	57	4.69

	O	
	Nom	Max
	4.9	5.11